



# 70~100W Constant Voltage + Constant Current LED Driver **ELG-100** series



User's Manual



IS 15885(Part 2/Sec13)

R-41027766

(Please refer safety description)



(for DA-Type only)



SELV IP65 IP67



## ■ Features

- Constant Voltage + Constant Current mode output
- Metal housing design with functional Ground
- Built-in active PFC function
- Class 2 power unit
- No load / Standby power consumption <0.5W
- IP67 / IP65 rating for indoor or outdoor installations
- Function options: output adjustable via potentiometer;  
3 in 1 dimming (dim-to-off); Smart timer dimming; DALI
- Typical lifetime>50000 hours
- 5 years warranty

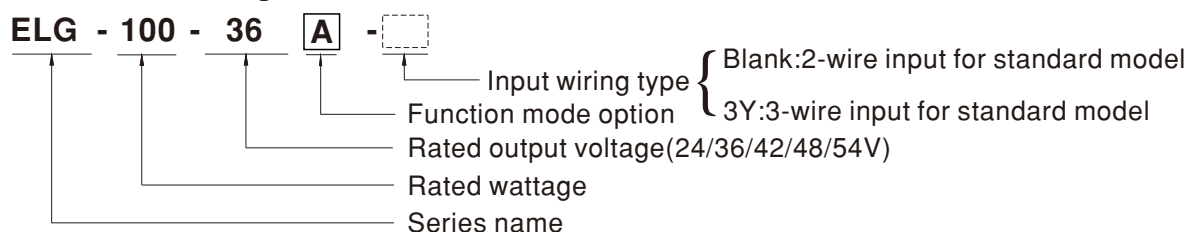
## ■ Applications

- LED street lighting
- LED architectural lighting
- LED bay lighting
- LED floodlighting
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location.

## ■ Description

ELG-100 series is a 100W AC/DC LED driver featuring the dual mode constant voltage and constant current output. ELG-100 operates from 100~360VAC and offers models with different rated voltage ranging between 24V and 54V. Thanks to the high efficiency up to 91%, with the fanless design, the entire series is able to operate for -40°C ~ +90°C case temperature under free air convection. The design of metal housing and IP67/IP65 ingress protection level allows this series to fit both indoor and outdoor applications. ELG-100 is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system

## ■ Model Encoding



Type	IP Level	Function	Note
Blank	IP67	Io and Vo fixed.	In Stock
A	IP65	Io and Vo adjustable through built-in potentiometer.	In Stock
B	IP67	3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)	In Stock
AB	IP65	Io and Vo adjustable through built-in potentiometer & 3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)	In Stock
DA	IP67	DALI control technology.	In Stock
Dx	IP67	Built-in Smart timer dimming function by user request.	By request
D2	IP67	Built-in Smart timer dimming and programmable function.	In Stock

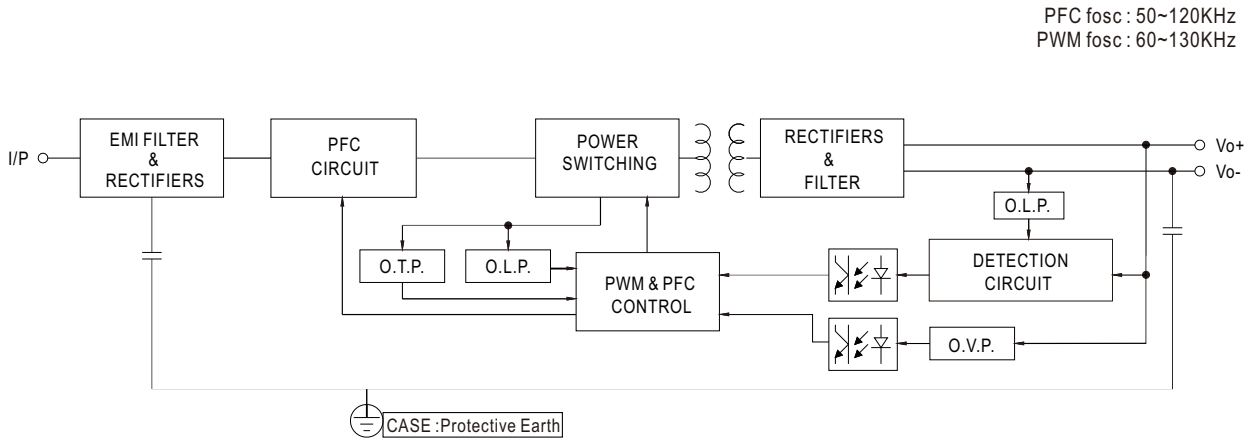
**SPECIFICATION**

MODEL		ELG-100-24□	ELG-100-36□	ELG-100-42□	ELG-100-48□	ELG-100-54□	
OUTPUT	DC VOLTAGE	24V	36V	42V	48V	54V	
	CONSTANT CURRENT REGION <small>Note.2</small>	12 ~ 24V	18 ~ 36V	21 ~ 42V	24 ~ 48V	27 ~ 54V	
	RATED CURRENT	4.0A	2.66A	2.28A	2A	1.78A	
	RATED POWER	200VAC ~ 305VAC					
		96W	95.76W	95.76W	96W	96.12W	
		100VAC ~ 180VAC					
		70W	70W	70W	70W	70W	
	RIPPLE & NOISE (max.) <small>Note.3</small>	200mVp-p	250mVp-p	250mVp-p	300mVp-p	350mVp-p	
	VOLTAGE ADJ. RANGE	Adjustable for A/AB-Type only (via the built-in potentiometer)					
		21.6 ~ 26.4V	32.4 ~ 39.6V	37.8 ~ 46.2V	43.2 ~ 52.8V	48.6 ~ 59.4V	
	CURRENT ADJ. RANGE	Adjustable for A/AB-Type only (via the built-in potentiometer)					
		2 ~ 4A	1.33 ~ 2.66A	1.14 ~ 2.28A	1 ~ 2A	0.89 ~ 1.78A	
	VOLTAGE TOLERANCE <small>Note.4</small>	±3.0%	±2.5%	±2.5%	±2.0%	±2.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	
SETUP, RISE TIME <small>Note.6</small>	1000ms, 80ms/115VAC      500ms, 100ms/230VAC						
HOLD UP TIME (Typ.)	15ms/115VAC      10ms/230VAC						
INPUT	VOLTAGE RANGE <small>Note.5</small>	100 ~ 305VAC      142 ~ 431VDC continue,320VAC for 24Hrs; 360VAC for 1Hr (Please refer to "STATIC CHARACTERISTIC" section)					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR	PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF ≥ 0.92/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)					
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≥50%/115VC; @load≥60%/230VAC; @load≥75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)					
	EFFICIENCY (Typ.)	88%	89%	90%	90%	91%	
	AC CURRENT	1.1A / 115VAC      0.6A / 230VAC      0.5A/277VAC					
	INRUSH CURRENT(Typ.)	COLD START 60A(twidth=850μs measured at 50% Ipeak) at 230VAC; Per NEMA 410					
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	3 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC					
	LEAKAGE CURRENT	<0.75mA / 277VAC					
	NO LOAD / STANDBY POWER CONSUMPTION	No load power consumption <0.5W for Blank / A / Dx / D2-Type Standby power consumption <0.5W for B / AB / DA-Type					
PROTECTION	OVER CURRENT	95 ~ 108%					
		Constant current limiting, recovers automatically after fault condition is removed					
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	28 ~ 34V	41 ~ 48V	47 ~ 54V	54 ~ 62V	62 ~ 72V	
		Shut down output voltage, re-power on to recover					
OVER TEMPERATURE	Shut down output voltage, re-power on to recover						
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +90℃ (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)					
	MAX. CASE TEMP.	Tcase=+90℃					
	WORKING HUMIDITY	20 ~ 95% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 60℃)					
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes					
SAFETY & EMC	SAFETY STANDARDS	UL8750(type"HL"), CSA C22.2 No. 250.13-12; IEC/BS EN/EN/AS/NZS 61347-1, IEC/BS EN/EN/AS/NZS 61347-2-13 independent, BS EN/EN62384; EAC TP TC 004;BIS IS15885(for 24/24A/24B/24DA/36/36A/36B/42/42A/42ADA/42B/48/48B/54/54A/54ADA/54B only); GB19510.1, GB19510.14; IP65 or IP67;KC61347-1, KC61347-2-13 approved					
	DALI STANDARDS	Compliance to IEC62386-101,102,(207 by request) for DA Type only					
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC    I/P-FG:2.0KVAC    O/P-FG:1.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH					
	EMC EMISSION	Compliance to BS EN/EN55015,BS EN/EN61000-3-2 Class C (@load ≥ 60%); BS EN/EN61000-3-3;GB17743, GB17625.1; EAC TP TC 020; KC KN15,KN61547					
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Earth 6KV, Line-Line 4KV); EAC TP TC 020; KC KN15, KN61547					
OTHERS	MTBF	978.2K hrs min. Telcordia SR-332 (Bellcore)		282.9Khrs min.	MIL-HDBK-217F (25℃)		
	DIMENSION	199*63*35.5mm (L*W*H)					
	PACKING	0.85kg; 16pcs/14.2kg/0.72CUFT					



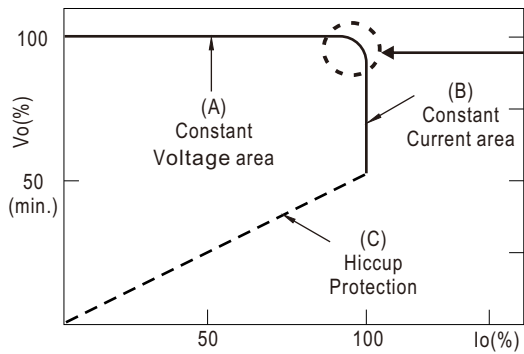
# 70~100W Constant Voltage + Constant Current LED Driver **ELG-100 series**

## ■ Block Diagram



## ■ DRIVING METHODS OF LED MODULE

※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.

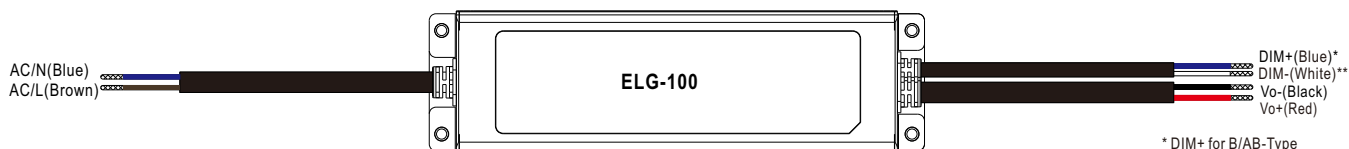


Typical output current normalized by rated current (%)

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.  
Should there be any compatibility issues, please contact MEAN WELL.

© This characteristic applies to Blank/A/B/AB/DX/D2-Type,  
For DA-Type, the Constant Current area is 60%~100% Vo.

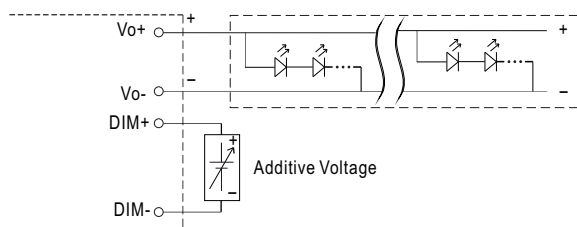
## DIMMING OPERATION



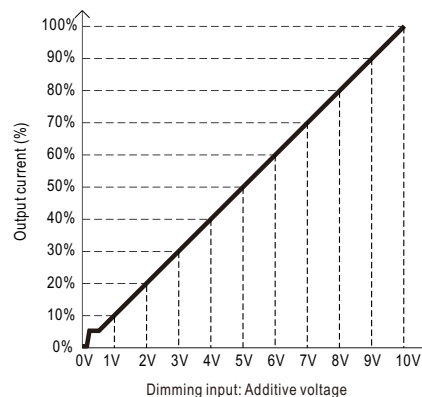
### ※ 3 in 1 dimming function (for B/AB-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:  
0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100 $\mu$ A (typ.)

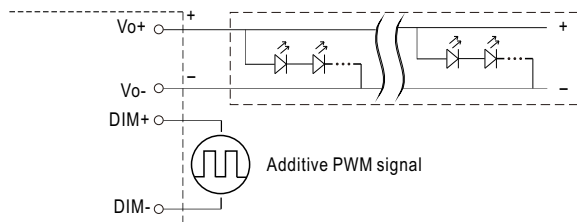
#### ◎ Applying additive 0 ~ 10VDC



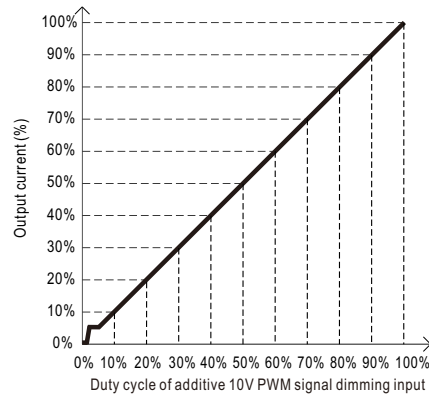
"DO NOT connect "DIM- to Vo-"



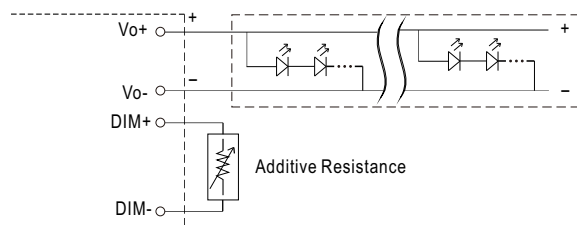
#### ◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



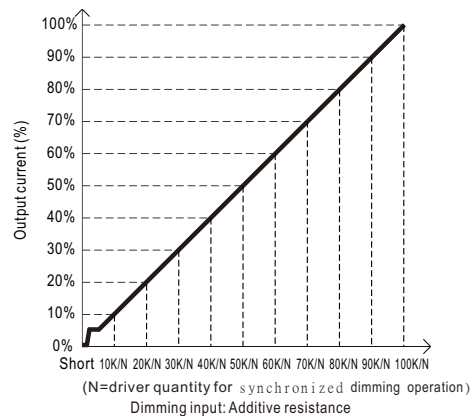
"DO NOT connect "DIM- to Vo-"



#### ◎ Applying additive resistance:



"DO NOT connect "DIM- to Vo-"



Note : 1. Min. dimming level is about 8% and the output current is not defined when  $0\% < I_{out} < 8\%$ .

2. The output current could drop down to 0% when dimming input is about  $0k\Omega$  or 0Vdc, or 10V PWM signal with 0% duty cycle.



# 70~100W Constant Voltage + Constant Current LED Driver **ELG-100** series

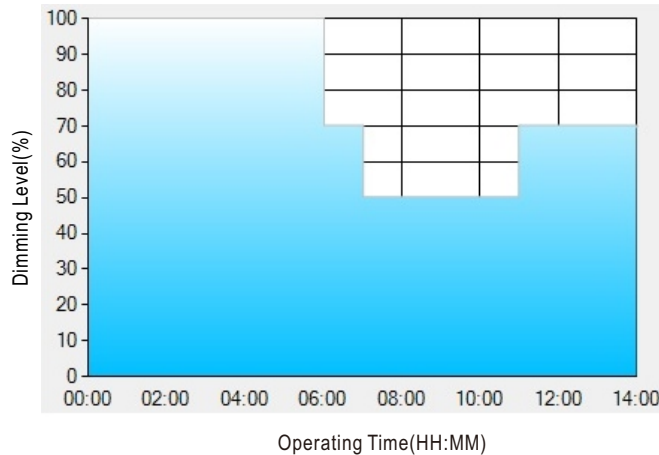
## ※ DALI Interface (primary side; for DA-Type)

- Apply DALI signal between DA+ and DA-.
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 8% of output.

## ※ Smart timer dimming function (for Dxx-Type by User definition)

MEAN WELL Smart timer dimming primarily provides the adaptive proportion dimming profile for the output constant current level to perform up to 14 consecutive hours. 3 dimming profiles hereunder are defined accounting for the most frequently seen applications. If other options may be needed, please contact MEAN WELL for details.

Ex : ☉ D01-Type: the profile recommended for residential lighting



Set up for D01-Type in Smart timer dimming software program:

	T1	T2	T3	T4
TIME**	06:00	07:00	11:00	---
LEVEL**	100%	70%	50%	70%

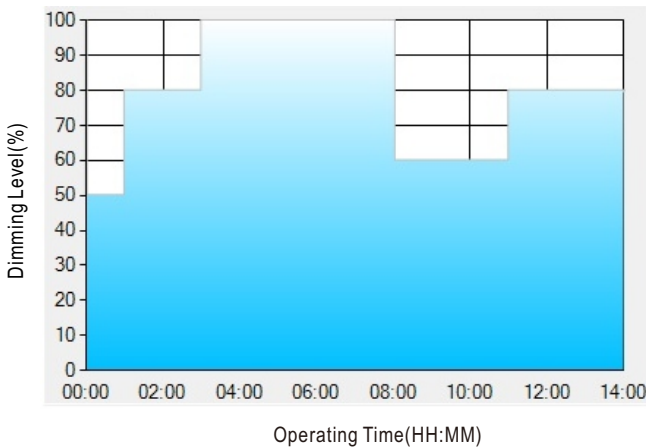
\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

Example: If a residential lighting application adopts D01-Type, when turning on the power supply at 6:00pm, for instance:

- [1] The power supply will switch to the constant current level at 100% starting from 6:00pm.
- [2] The power supply will switch to the constant current level at 70% in turn, starting from 0:00am, which is 06:00 after the power supply turns on.
- [3] The power supply will switch to the constant current level at 50% in turn, starting from 1:00am, which is 07:00 after the power supply turns on.
- [4] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.

The constant current level remains till 8:00am, which is 14:00 after the power supply turns on.

Ex : ☉ D02-Type: the profile recommended for street lighting



Set up for D02-Type in Smart timer dimming software program:

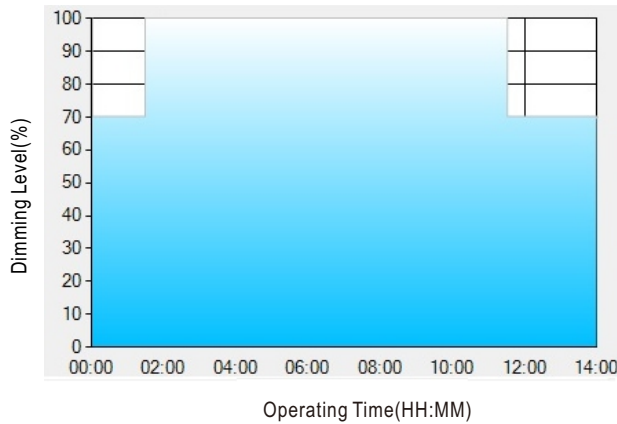
	T1	T2	T3	T4	T5
TIME**	01:00	03:00	8:00	11:00	---
LEVEL**	50%	80%	100%	60%	80%

\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

Example: If a street lighting application adopts D02-Type, when turning on the power supply at 5:00pm, for instance:

- [1] The power supply will switch to the constant current level at 50% starting from 5:00pm.
- [2] The power supply will switch to the constant current level at 80% in turn, starting from 6:00pm, which is 01:00 after the power supply turns on.
- [3] The power supply will switch to the constant current level at 100% in turn, starting from 8:00pm, which is 03:00 after the power supply turns on.
- [4] The power supply will switch to the constant current level at 60% in turn, starting from 1:00am, which is 08:00 after the power supply turns on.
- [5] The power supply will switch to the constant current level at 80% in turn, starting from 4:00am, which is 11:00 after the power supply turns on. The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.

Ex: ☉ D03-Type: the profile recommended for tunnel lighting



Set up for D03-Type in Smart timer dimming software program:

	T1	T2	T3
TIME**	01:30	11:00	---
LEVEL**	70%	100%	70%

\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

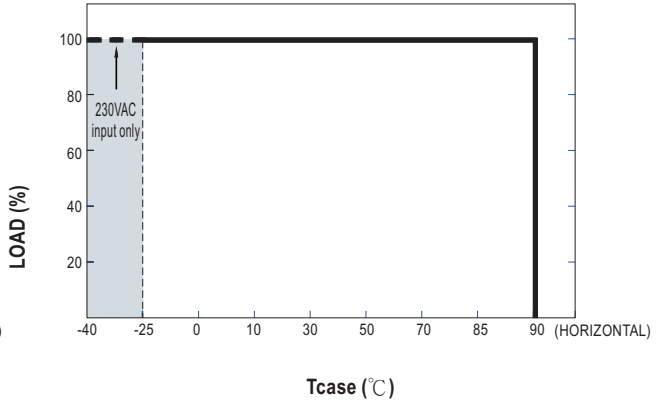
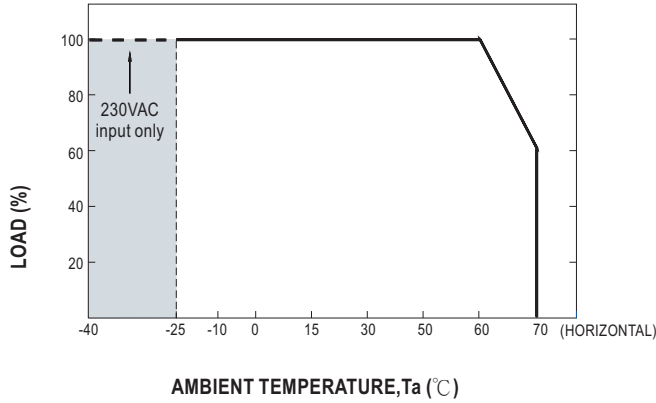
Example: If a tunnel lighting application adopts D03-Type, when turning on the power supply at 4:30pm, for instance:

- [1] The power supply will switch to the constant current level at 70% starting from 4:30pm.
  - [2] The power supply will switch to the constant current level at 100% in turn, starting from 6:00pm, which is 01:30 after the power supply turns on.
  - [3] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.
- The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.

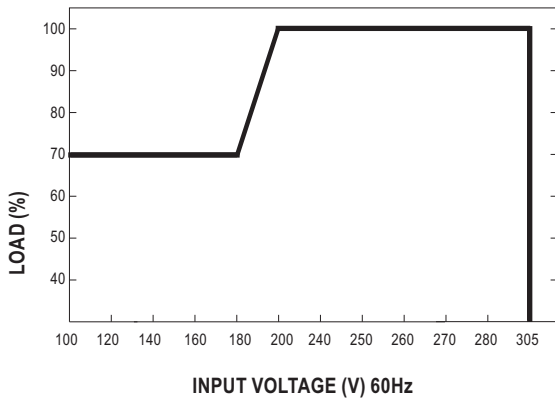


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## ■ OUTPUT LOAD vs TEMPERATURE(Note.9)



## ■ STATIC CHARACTERISTIC

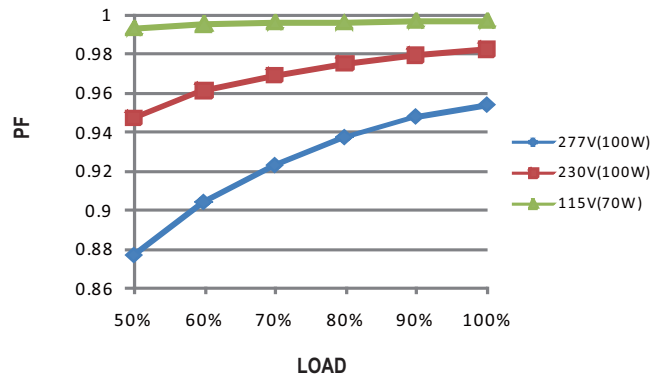


※ De-rating is needed under low input voltage.

## ■ POWER FACTOR (PF) CHARACTERISTIC

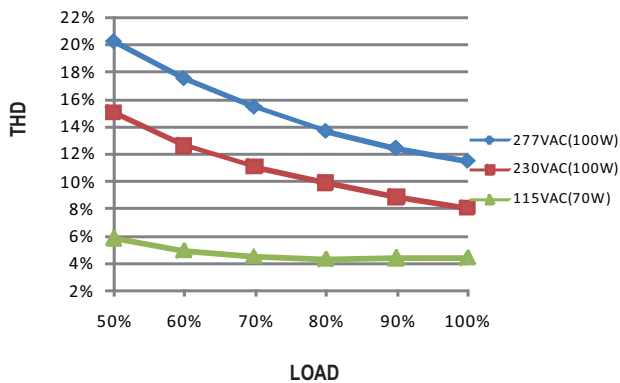
※ Tcase at 80°C

Constant Current Mode



## ■ TOTAL HARMONIC DISTORTION (THD)

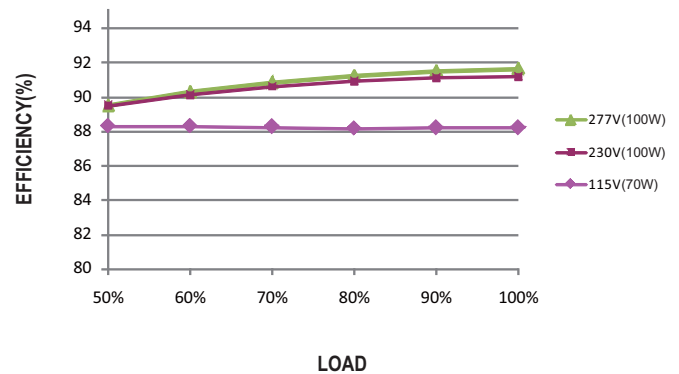
※ 54V Model, Tcase at 80°C



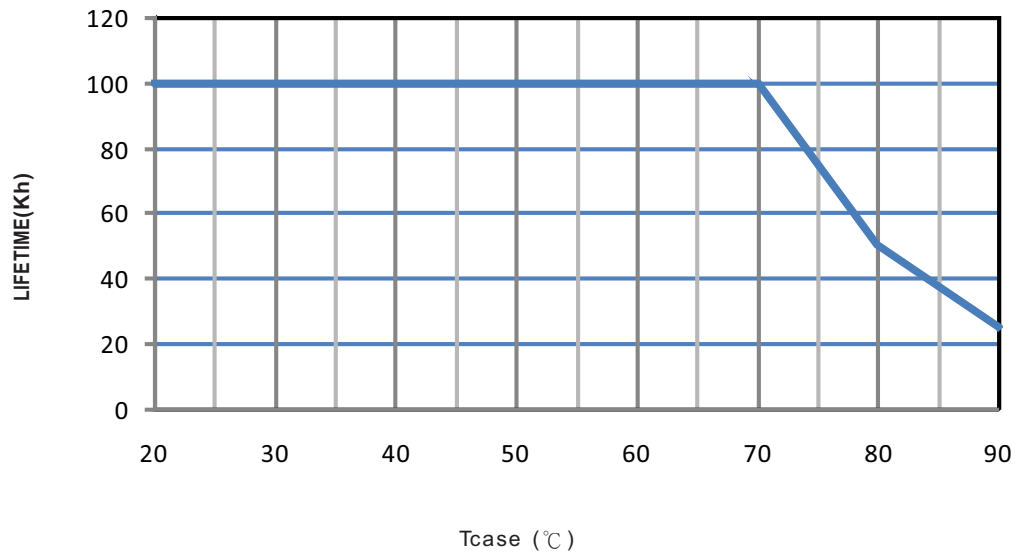
## ■ EFFICIENCY vs LOAD

ELG-100 series possess superior working efficiency that up to 91% can be reached in field applications.

※ 54V Model, Tcase at 80°C



■ LIFE TIME





## ■ Mechanical Specification

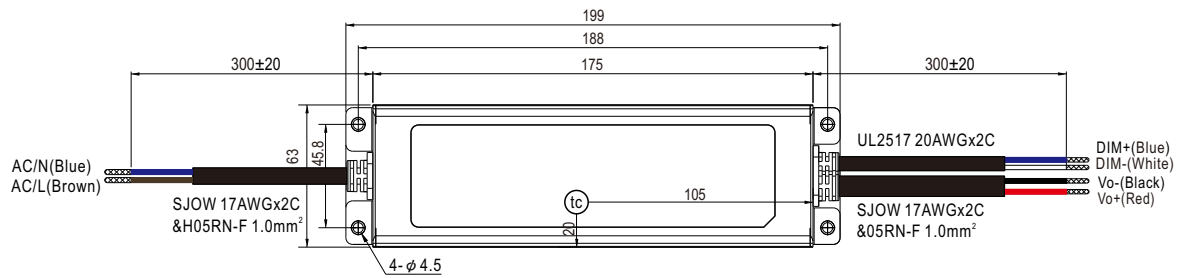
CASE NO.: 244A      Unit:mm



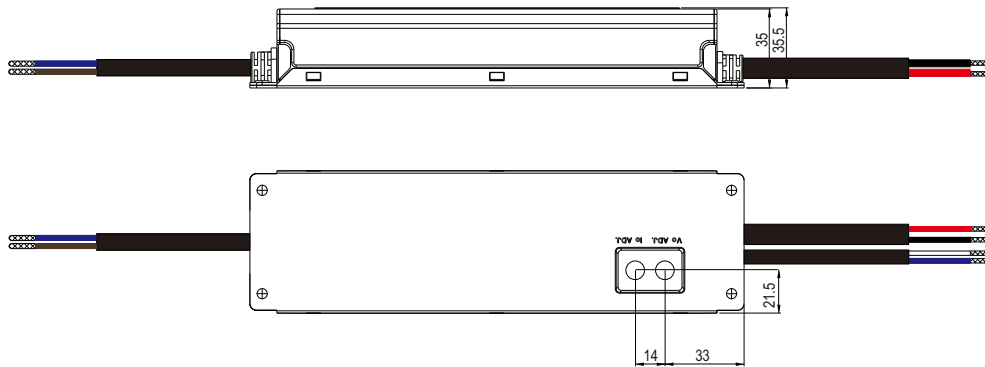
Technical drawing of a cable assembly. The drawing shows a cross-section of a cable with a black outer jacket, a red inner jacket, and a braided shield. The cable is connected to a metal housing. The housing has a width of 35 mm and a height of 35.5 mm. The drawing also shows the internal wiring and the connection points.



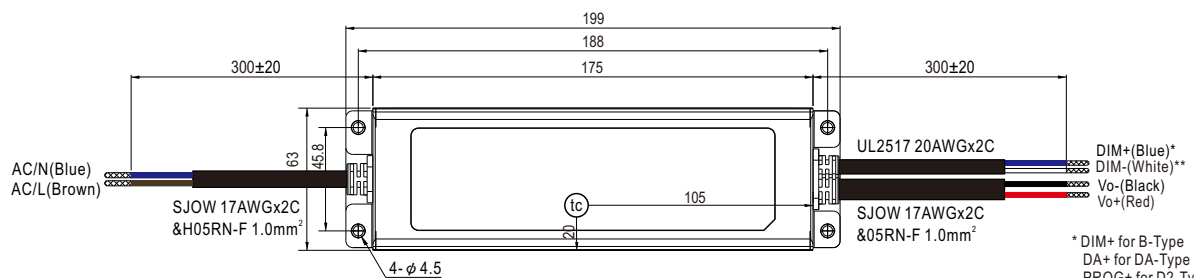
※ AB-Type



• (tc) : Max. Case Temperature



※ B/DA/D2-Type



• (tc) : Max. Case Temperature

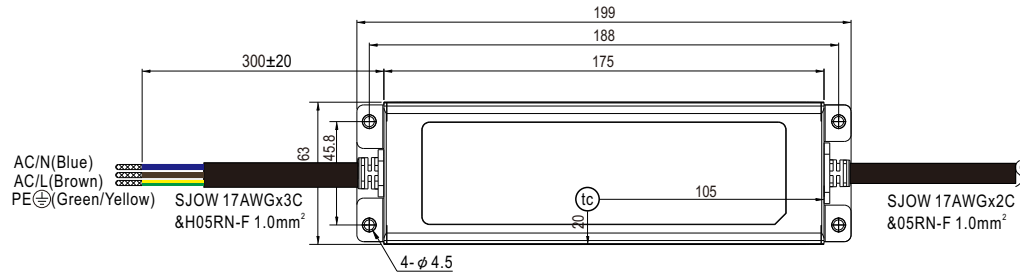
\* DIM+ for B-Type  
DA+ for DA-Type  
PROG+ for D2-Type  
\* DIM- for B-Type  
DA- for DA-Type  
PROG- for D2-Type





# 70~100W Constant Voltage + Constant Current LED Driver **ELG-100** series

## ※ 3Y Model (3-wire input)



• (tc) : Max. Case Temperature

◎ Note1: Please connect the case to PE for the complete EMC deliverance and safety use.

◎ Note2: Please contact MEAN WELL for input wiring option with PE.

## ■ INSTALLATION MANUAL

Please refer to : <http://www.meanwell.com/manual.html>