XLN-60 Series 60W Multiple Stage Constant Power Constant Voltage LED Driver Owner's Manual

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XLN

XLN-60 Series 60W Multiple Stage Constant Power Constant Voltage LED Driver

Product Usage Instructions

- Ensure the input voltage is within the specified range (176-280VDC).
- Connect the LED driver to the LED light fixture following the manufacturer's guidelines.
- Securely mount the LED driver in a well-ventilated area to prevent overheating.
- Ensure all connections are properly insulated to avoid any electrical hazards.
- Select the desired output mode by using the NFC setting for multiple-stage constant power.
- If using constant voltage mode, choose the appropriate voltage setting (12/24/48V) based on your LED light requirements.
- Monitor the LED driver for any abnormal behavior such as flickering lights or excessive heat.
- Periodically check the LED driver for dust accumulation and clean if necessary.
- Inspect the connections for any signs of wear or damage and replace if needed.
- Keep the LED driver away from moisture and extreme temperatures to ensure longevity.

FAQ

- **Q:** What should I do if the LED driver is overheating?
- **A:** Ensure proper ventilation around the LED driver and check for any obstructions blocking airflow. If the issue persists, contact customer support for further assistance.
- **Q:** Can I use this LED driver with dimmable LED lights?
- **A:** This LED driver is designed for constant power and constant voltage output and may not be compatible with dimmable LED lights. Check with the LED light manufacturer for compatibility.

Features

- Constant power mode output with multiple stage selectable by NFC setting (H-type)
- Constant voltage mode output available(12/24/48V)
- Plastic housing with class II and PFC design
- Meet UL8750 Class 2 / Class P power unit
- Flicker-free, complying with CE ErP directive
- Standby power consumption <0.5W
- Meet emergency lighting (EL) application
- Fully encapsulated with IP67
- Minimum dimming level 0.1% (DALI-2 DT6)
- Dimming functions: 3 in 1 dimming (Dim-to-off) DALI-2 + Push dimming
- 5 years warranty

Applications

- Recessed Light
- Down Light

- Panel Light
- Commercial Lighting
- Decorative Lighting
- LED strip lighting
- DALI digital Lighting

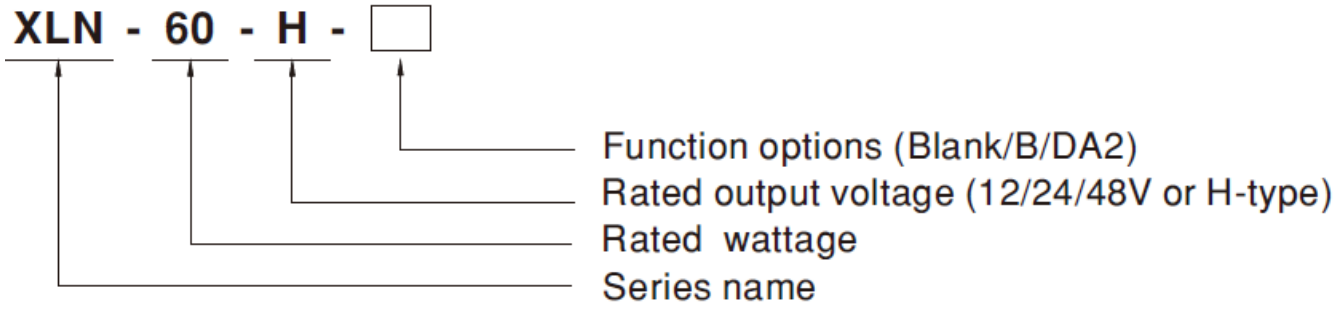
GTIN CODE

- MW Search: **https://www.meanwell.com/serviceGTIN.aspx**

Description

XLN-60 Series is a 60W with constant power and constant voltage output LED driver. It can operate from 110~305V AC and output current ranging between 900 mA to 1700 mA selectable by NFC setting. Thanks to high efficiency up to 90%, it can operate for -25°C ~90°C case temperature under free air convection. XLN-60 is designed based on latest safety regulations with 3 in 1 and DALI-2 dimming. XLN-60 can be adjusted for brightness with a push button as a simple way of dimming, so it provides more flexibility for LED Lighting applications.

Model Encoding



Type	Function	Note
Blank	H-type output current selectable by NFC setting with constant power mode	In stock
	12, 24, 48V Constant voltage output	
B	H-type output current selectable by NFC setting and built-in 3 in 1 dimming	
	12, 24, 48V Constant voltage output and built-in 3 in 1 Dimming(PWM Style output)	
DA2	H-type output current selectable by NFC setting and built-in DALI-2 dimming	
	12, 24, 48V Constant voltage output and built-in DALI-2(PWM Style output)	

SPECIFICATION

MODEL	**XLN-60-12-**	**XLN-60-24-**	**XLN-60-48-**

OUTPUT	**DC VOLTAGE**	12V	24V	48V
	DEFAULT CURRENT	5A	2.5A	1.25A
	RATED POWER	60W	60W	60W
	SETUP, RISE TIME	800ms,180ms/230VAC ,1000ms,180ms/115VAC		
INPUT	**VOLTAGE RANGE**	110~305VAC 155~400VDC		
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR	PF≥0.95/115VAC, PF≥0.95/230VAC,PF≥0.9/277VAC@full load (Please refer to the “POWER FACTOR (PF) CHARACTERISTIC” section)		
	TOTAL HARMONIC DISTORTION	THD< 20%(@load ≥60%/230VAC; @load ≥75%/277VAC), THD<10%@load 100%/230VAC (Please refer to “TOTAL HARMONIC DISTORTION(THD)” section)		
	EFFICIENCY(Typ.)	86%	87%	88%
	AC CURRENT	0.75A/115VAC, 0.35A/230VAC, 0.3A/277VAC		
	INRUSH CURRENT	COLD START 15A(twidth=310μs measured at 50% Ipeak) at 230VAC; Per NEMA 410		
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	25 units (circuit breaker of type B) / 36 units (circuit breaker of type C) at 230VAC		
	LEAKAGE CURRENT	<0.75mA / 277VAC		
	STANDBY POWER Note5 **CONSUMPTION**	Standby power consumption<0.5W(Dimming OFF, only for standard version B/DA2-type)		
	OVERLOAD	105~200% rated output power		
		Protection type: Hiccup mode, which recovers automatically after the fault condition is removed.		
	SHORT CIRCUIT	Hiccup mode recovers automatically after the fault condition is removed		

PROTECTION	**OVERVOLTAGE**	14-17V	26-35V	52-63V
		Shut down output voltage and re-power on to recover		
	OVER TEMPERATURE	Shut down output voltage recovers automatically after fault condition is removed		
ENVIRONMENT	**WORKING TEMP.**	Tcase=-25~90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)		
	MAX. CASE TEMP.	Tcase=90℃		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, and Z axes		
SAFETY	**SAFETY STANDARDS**	UL8750(type "HL" and Class P),CSA C22.2 No. 250.13-12;ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations(DC input 176-280VDC); BS EN/EN62384 independent, GB19510.14, GB19510.1, EAC TP TC 004 approved; Design refer to AS/NZS 61347-1, AS/NZS 61347-2-13		
	DALI STANDARDS	Comply with IEC62386-101, 102, 207		
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC		
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level/Note**
		Conducted	BS EN/EN55015(CISPR15),GB/T 17743	——
		Radiated	BS EN/EN55015(CISPR15),GB/T 17743	——
		Harmonic Current	BS EN/EN61000-3-2 , GB17625.1	Class C @load≥60%
		Voltage Flicker	BS EN/EN61000-3-3	——

&**EMC**				
	EMC IMMUNITY	BS EN/EN61547		
		Parameter	**Standard**	**Test Level/Note**
		ESD	BS EN/EN61000-4-2	Level 3, 8KV air ; Level 2 , 4KV contact
		Radiated	BS EN/EN61000-4-3	Level 2
		EFT/Burst	BS EN/EN61000-4-4	Level 2
		Surge	BS EN/EN61000-4-5	Level 3, 1KV/Line-Line
		Conducted	BS EN/EN61000-4-6	Level 2
		Magnetic Field	BS EN/EN61000-4-8	Level 2
		Voltage Dips and Interruptions	BS EN/EN61000-4-11	70% residual voltage for 10 period, 0% residual voltage for 0.5 periods
OTHERS	**FLICKER Note.9**	PstLM ≤ 1, SVM ≤ 0.4		
	MTBF	4053.7K hrs min. Telcordia SR-332 (Bellcore) 329.4Khrs min. MIL-HDBK-217F (25℃)		
	DIMENSION	141.5*49*32mm(L*W*H)		
	PACKING	0.49Kg ; 30pcs/15.7Kg/0.81CUFT		

NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current, and 25℃ of ambient temperature. 2. De-rating may be needed under low input voltages. Please refer to the “STATIC CHARACTERISTIC” sections for details. 3. Length of set up time is measured at the first cold start. Turning ON/OFF the driver may lead to an increase in the set-up time. 4. Current ripple is measured 50%~100% of maximum voltage underrated power delivery. 5. Standby power consumption is measured at 230VAC. 6. The driver is considered a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify the EMC Directive on the complete installation again. (as available on **https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf**) 7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitudes higher than 2000m(6500ft). 8. To fulfill the requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without being permanently connected to the mains. 9. Flicker is measured at full load with the light source provided by MEAN WELL. 10. RCM is voluntary. Non-IC classification Independent LED control gear is not suitable for residential installations. 11. This series meets the typical life expectancy of 50000 hours of operation when Tcase, particularly tc point(or TMP, per DLC), is about 75℃ or less. 12. For more information, please contact MEAN WELL sales. ※ Product Liability Disclaimer For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**

MODEL		**XLN-60-H-**
OUTPUT	**OPEN CIRCUIT VOLTAGE Note14**	60V
	DEFAULT CURRENT	1400mA
	CURRENT ADJ. RANGE (BY NFC)	0.9~1.7A
	CONSTANT CURRENT REGION	9~54V
	RATED POWER	60W

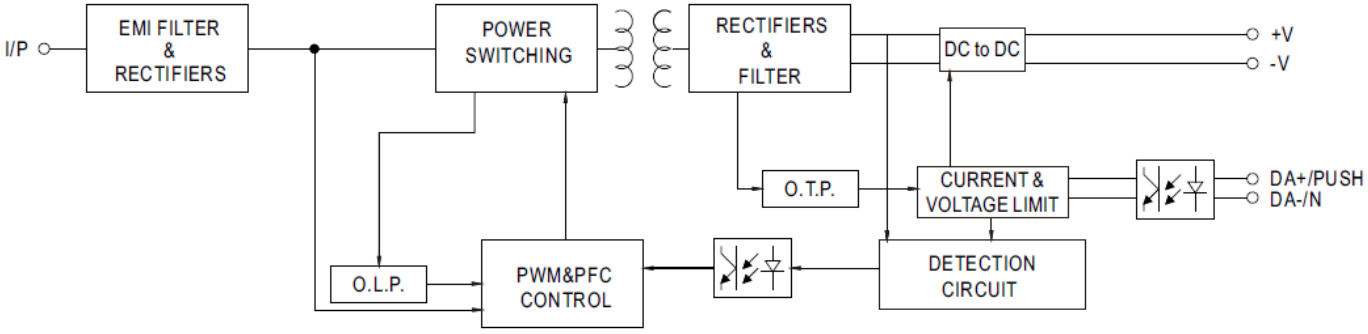
	CURRENT RIPPLE Note4	<4%
	CURRENT TOLERANCE	±5%
	DIMMING RANGE	0~100%
	SETUP, RISE TIME Note13	800ms,100ms/230VAC ,1000ms,100ms/115VAC
INPUT	**VOLTAGE RANGE**	110~305VAC 155~400VDC
	FREQUENCY RANGE	47 ~ 63Hz
	POWER FACTOR	PF≥0.95/115VAC, PF≥0.95/230VAC, PF≥0.9/277VAC@full load (Please refer to the “POWER FACTOR (PF) CHARACTERISTIC” section)
	TOTAL HARMONIC DISTORTION	THD< 20%(@load ≥60%/230VAC; @load ≥75%/277VAC), THD<10%@load 100%/230VAC (Please refer to “TOTAL HARMONIC DISTORTION(THD)” section)
	EFFICIENCY(Typ.) Note12	90%
	AC CURRENT	0.75A/115VAC, 0.35A/230VAC, 0.3A/277VAC
	INRUSH CURRENT	COLD START 15A(twidth=310μs measured at 50% Ipeak) at 230VAC; Per NEMA 410
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	25 units (circuit breaker of type B) / 36 units (circuit breaker of type C) at 230VAC
	LEAKAGE CURRENT	<0.75mA / 277VAC
	STANDBY POWER Note5 **CONSUMPTION**	Standby power consumption<0.5W (Dimming off, only for standard version B/DA2-type)
PROTECTION	**SHORT CIRCUIT**	Hiccup mode recovers automatically after the fault condition is removed
		DA2 type: Stage 1: Derating to 75% loading; stage2: Derating to 50% loading; Recovers automatically after fault condition is removed

	OVER TEMPERATURE	Blank & B type: Derating to lowest output level, Recovers automatically after fault condition is removed		
ENVIRONMENT	**WORKING TEMP.**	Tcase=-25~90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)		
	MAX. CASE TEMP.	Tcase=90℃		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		
SAFETY &EMC	**SAFETY STANDARDS**	UL8750(type"HL" and Class P),CSA C22.2 No. 250.13-12; ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations(DC input 176-280VDC); BS EN/EN62384 independent, GB19510.14, GB19510.1, EAC TP TC 004 approved; Design refer to AS/NZS 61347-1, AS/NZS 61347-2-13		
	DALI STANDARDS	Comply with IEC62386-101, 102, 207		
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC		
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH		
	EMC EMISSION	**Parameter**	**Standard**	**Test Level/Note**
		Conducted	BS EN/EN55015(CISPR15),GB/T 17743	——
		Radiated	BS EN/EN55015(CISPR15),GB/T 17743	——
		Harmonic Current	BS EN/EN61000-3-2 , GB17625.1	Class C @load≥60%
		Voltage Flicker	BS EN/EN61000-3-3	——
		BS EN/EN61547		

	EMC IMMUNITY	**Parameter**	**Standard**	**Test Level/Note**
		ESD	BS EN/EN61000-4-2	Level 3, 8KV air ; Level 2 , 4KV contact
		Radiated	BS EN/EN61000-4-3	Level 2
		EFT/Burst	BS EN/EN61000-4-4	Level 2
		Surge	BS EN/EN61000-4-5	Level 3, 1KV/Line-Line
		Conducted	BS EN/EN61000-4-6	Level 2
		Magnetic Field	BS EN/EN61000-4-8	Level 2
		Voltage Dips and Interruptions	BS EN/EN61000-4-11	70% residual voltage for 10 period, 0% residual voltage for 0.5 periods
OTHERS	**FLICKER Note9**	PstLM ≤ 1, SVM ≤ 0.4		
	MTBF	4053.7Khrs min. Telcordia SR-332 (Bellcore) 329.4Khrs min. MIL-HDBK-217F (25℃)		
	DIMENSION	141.5*49*32mm (L*W*H)		
	PACKING	0.49Kg ; 30pcs/15.7Kg/0.81CUFT		

NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current, and 25°C of ambient temperature. 2. De-rating may be needed under low input voltages. Please refer to the “STATIC CHARACTERIS TIC” sections for details. 3. Length of set up time is measured at the first cold start. Turning ON/OFF the driver may lead to a n increase of the set-up time. 4. Current ripple is measured 50%~100% of maximum voltage underrated power delivery. 5. Standby power consumption is measured at 230VAC. 6. The driver is considered as a component that will be operated in combination with the final equip ment. Since EMC performance will be affected by the complete installation, the final equipment man ufacturers must re-qualify the EMC Directive on the complete installation. (as available on **https://w ww.meanwell.com//Upload/PDF/EMI_statement_en.pdf**) 7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fa n models for operating altitudes higher than 2000m(6500ft). 8. To fulfill the requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without being permanently connected to the mains. 9. Flicker is measured at full load with the light source provided by MEAN WELL. 10. RCM is voluntary. Non-IC classification Independent LED control gear is not suitable for residen tial installations. 11. This series meets the typical life expectancy of 50000 hours of operation when Tcase, particular ly tc point(or TMP, per DLC), is about 75°C or less. 12. Efficiency is measured at 1050mA/54V output set by DIP switch. 13. Based on IEC 62386-101/102 DALI power on timing and interruption regulations, the setup time needs to test with a DALI controller which can support for DALI power on function, otherwise the sta rt-up time will be higher than 0.5 seconds. 14. Output hiccups under no-load conditions. (only for H-type). 15. For more information, please contact MEAN WELL sales. ※ Product Liability Disclaimer For detailed information, please refer to **https://www.meanwell.com /serviceDisclaimer.aspx**

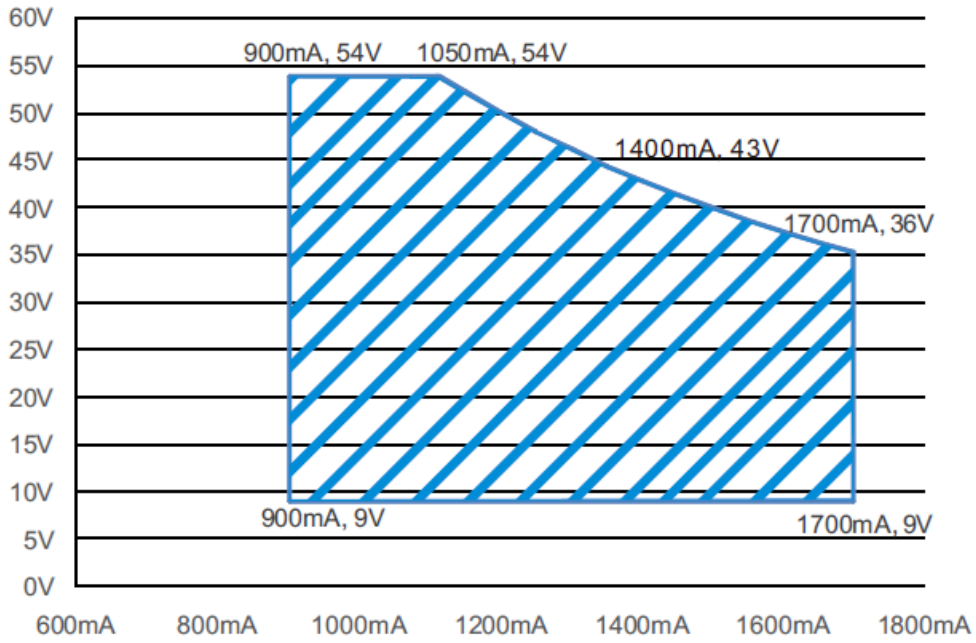
BLOCK DIAGRAM



DRIVING METHODS OF LED MODULE

- I-V Operating Area
- ◎XLN-60-H

For 60W application



CONSTANT POWER TABLE

- XLN-60-H is a multiple-stage constant power driver, the selection of output current through NFC setting is exhibited below.

Vo	Io
9~54V	900mA
9~54V	1050mA
9~50V	1200mA
9~46V	1300mA
9~43V	1400mA(default)
9~40V	1500mA
9~38V	1600mA
9~36V	1700mA

Note: 1. The operating voltage range shown on this table is recommended to use.

NFC Function Description

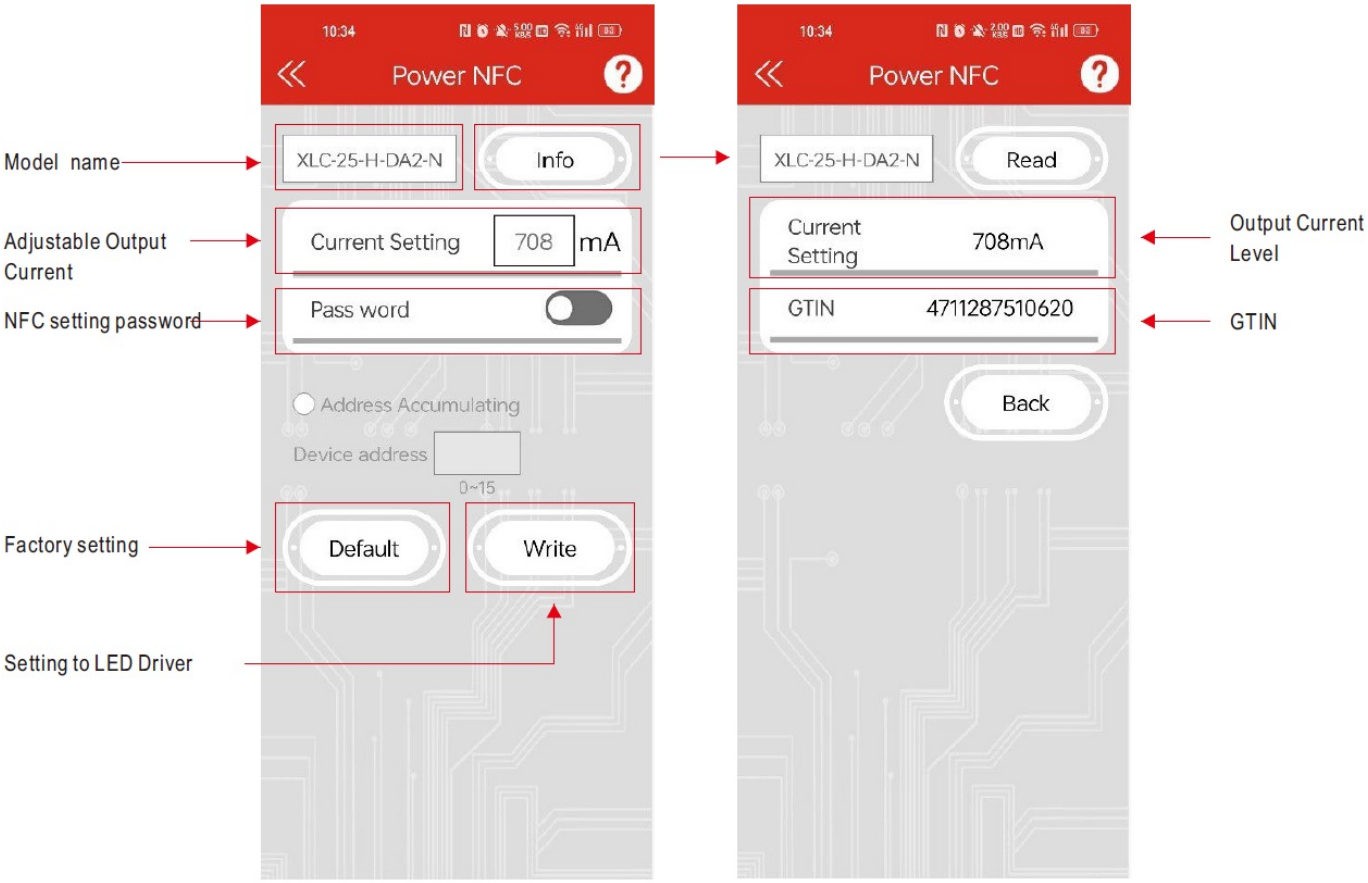
The output current of the NFC Mode LED driver can be adjusted using NFC via the mobile APP Operation Instruction:
Compatible phone
Install an NFC-compatible smart mobile device or phone with Android 4.1 or IOS12 updates.

Steps for setting output current via NFC

1. Download the Meanwell APP on a mobile device or mobile phone, and enable the NFC function.
2. Check the NFC antenna position of the mobile phone, please.
3. Enter Meanwell APP ->Top left menu –Installation Manual/APP->PowerNFC approach the LED driver NFC sensing position, and perform sensing.
4. APP displays the functional parameters, and the relevant parameters are modified as required.
5. Tap the APP write button and quickly move the phone antenna close to the NFC sensing position of the LED driver.
6. The write completes when the mobile phone displays”Success”.

APP Function Description

APP Interface



- To be used through APP available on Apple Store and Google Play Store for iOS and Android, Search ‘MEAN WELL’ on

Download on the App Store

ANDROID APP ON Google play

Note

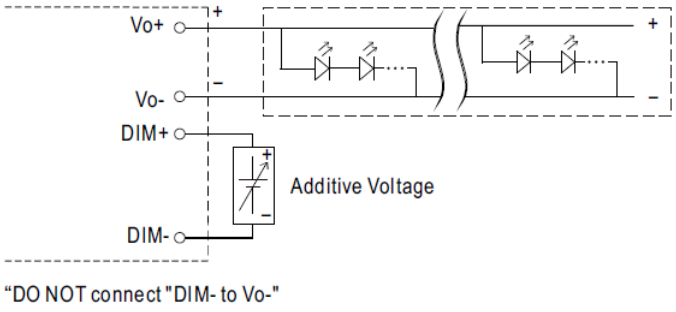
1. Current accuracy: the numerical error between the set current and the actual current is within 2%.
2. Please turn off the input power supply to the LED driver when using NFC function.

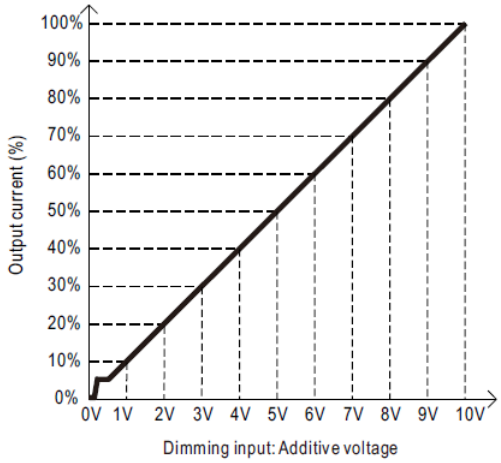
DIMMING OPERATION

B type

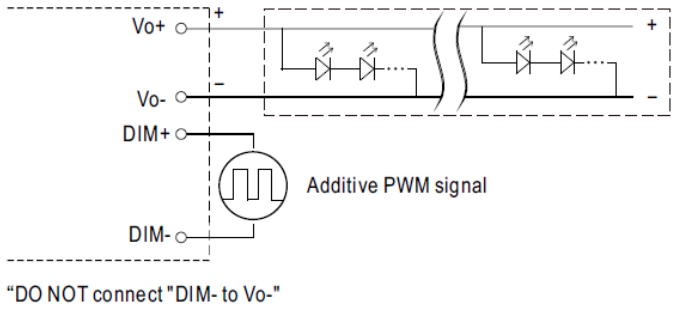
- 3 in 1 dimming function
- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
- 0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100μA (typ.)

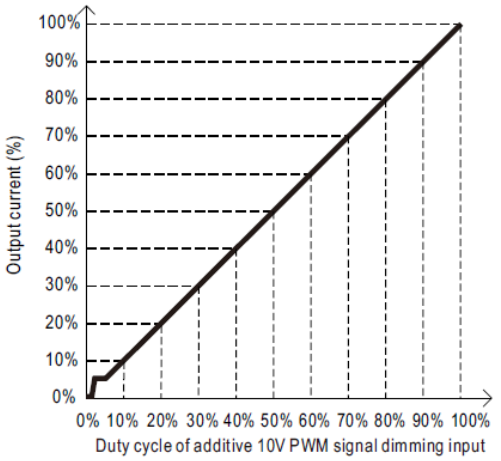
Applying additive 0 ~ 10VDC



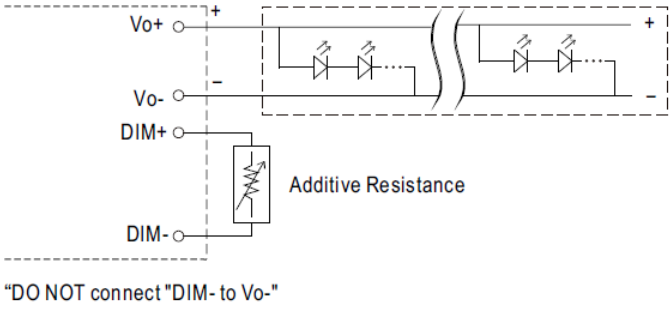


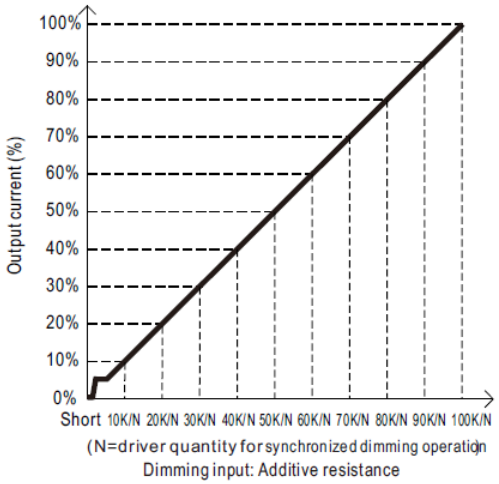
Applying additive 10V PWM signal (frequency range 300Hz~3KHz)





Applying additive resistance: 0~100kΩ





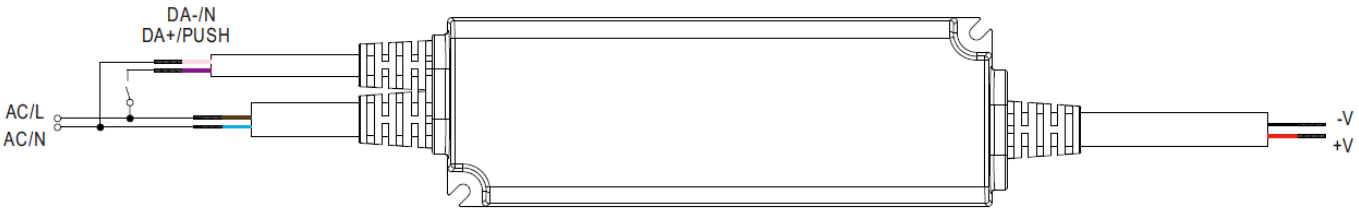
Note

1. Min. dimming level is about 8% and the output current is not defined when 0%< Iout<8%.
2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

DIMMING OPERATION

DA2 type (DALI-2 digital dimming function)

Input wiring diagram



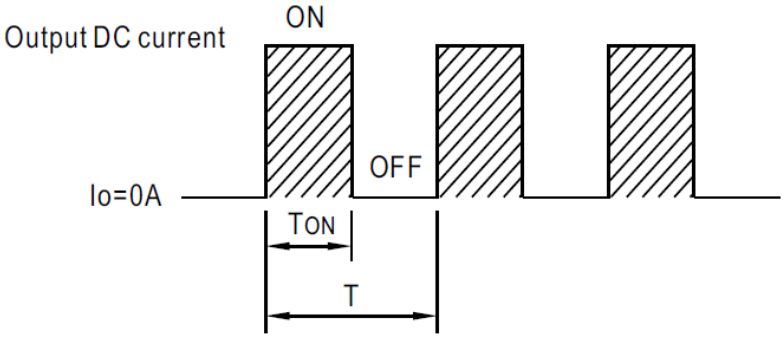
PUSH dimming (primary side)

- The factory default dimming level is at 100%.
- If the push action lasts less than 0.05 sec., it will not lead to a change for the status of the driver.
- Up to 10 drivers can perform the PUSH dimming at the same time when utilizing one common push button.
- The maximum length of the cable from the push button to the last driver is 20 meters.

Action	**Action duration**	**Function**
Short Push	0.1~1s	Turn ON-OFF the driver
Double Click	Click twice in 1.5s	Set up the dimming level to 100%
Long Push	1.5~10s	Every Long Push changes the dimming direction, dimming up or down

PWM OUTPUT DIMMING PRINCIPLE

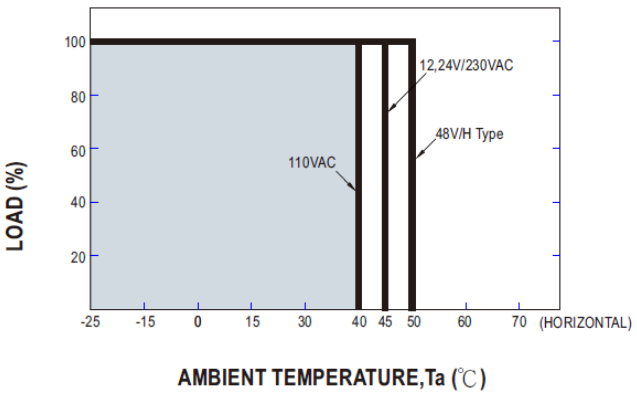
- For 12V/24V/48V PWM style output dimming
- Dimming is achieved by varying the duty cycle of the output current.

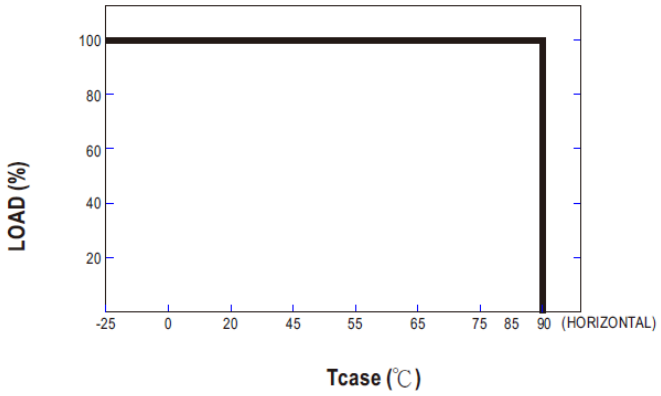


$$\text{Duty cycle}(\%) = \frac{T_{ON}}{T} \times 100\%$$

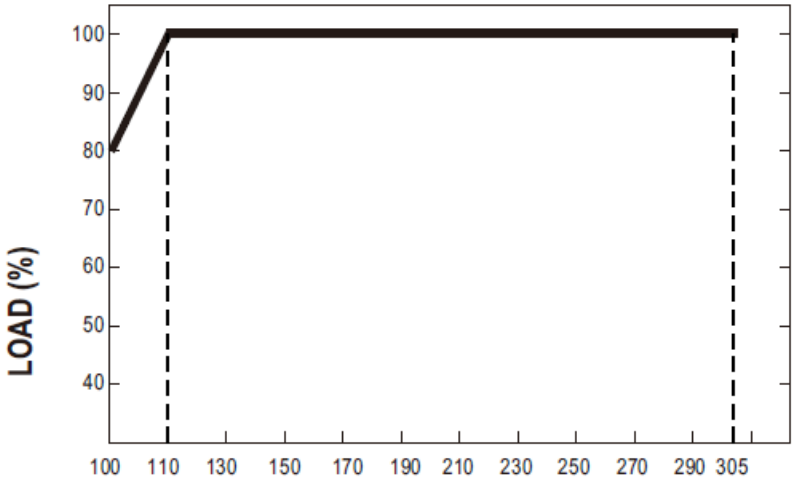
Output PWM frequency :
4kHz for B-Type fixed (Typ.)
3.2kHz for DA2-Type fixed (Typ.)

OUTPUT LOAD vs TEMPERATURE





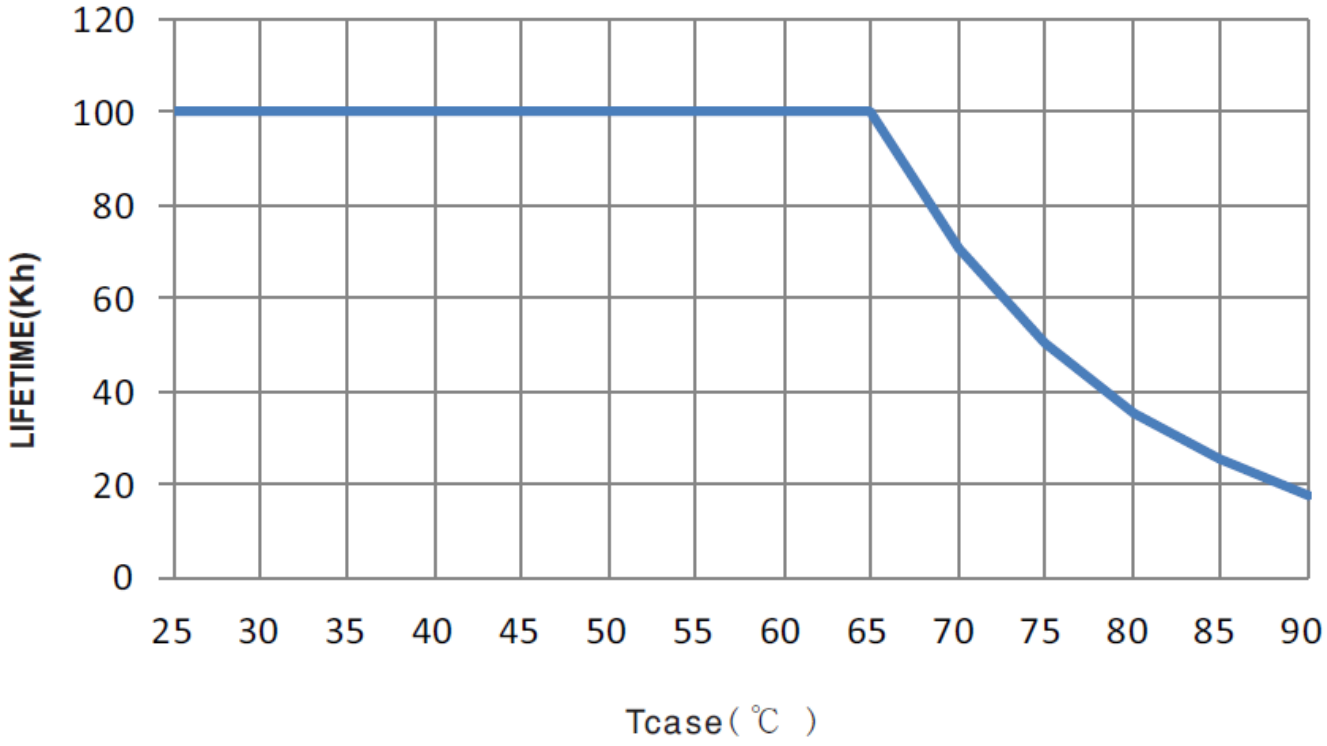
STATIC CHARACTERISTIC



INPUT VOLTAGE (V) 60Hz

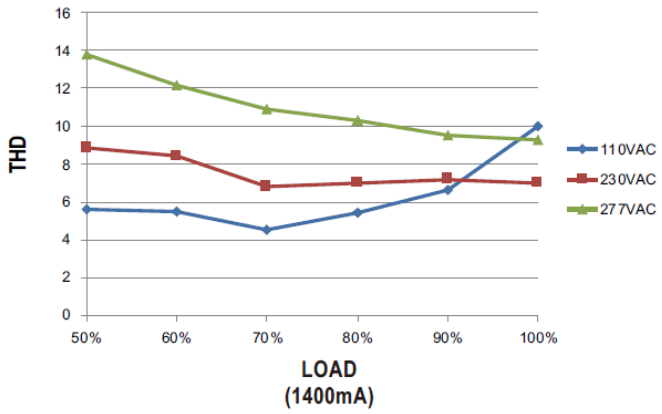
- De-rating is needed under low input voltage.

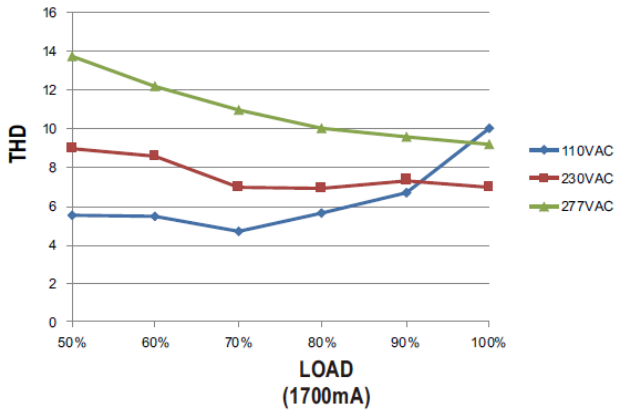
LIFE TIME



TOTAL HARMONIC DISTORTION (THD)

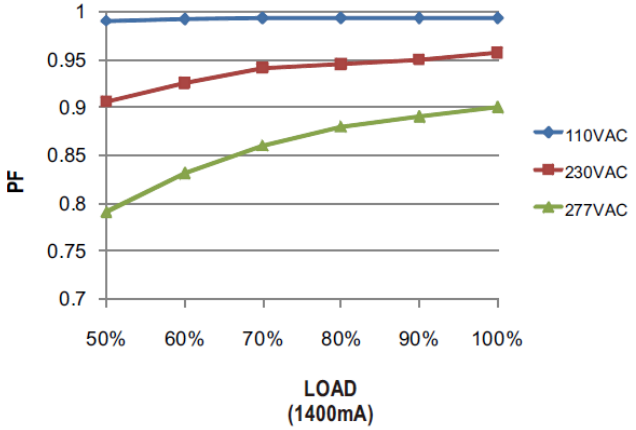
※ Tcase at 75℃

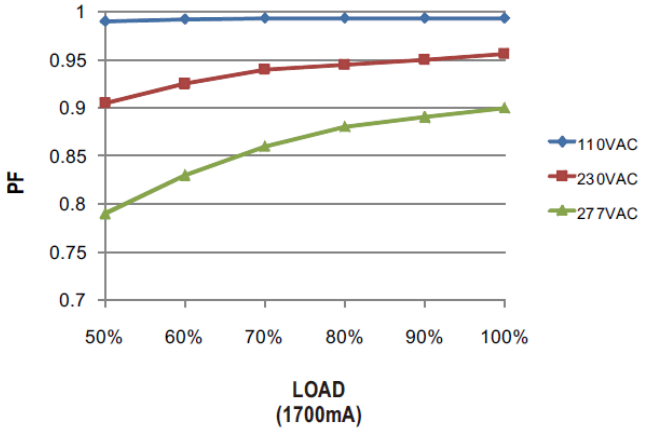




POWER FACTOR (PF) CHARACTERISTIC

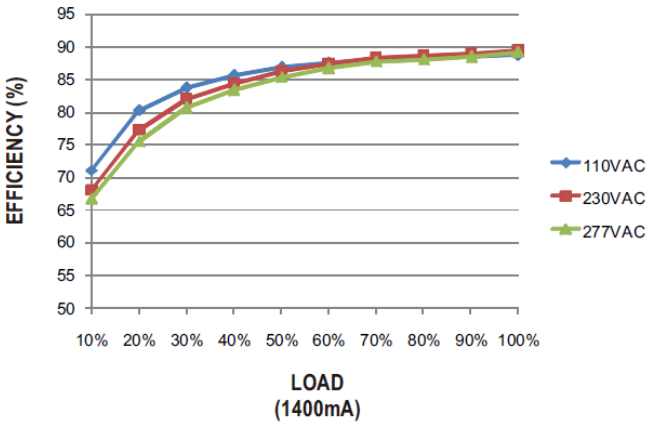
※ Tcase at 75℃

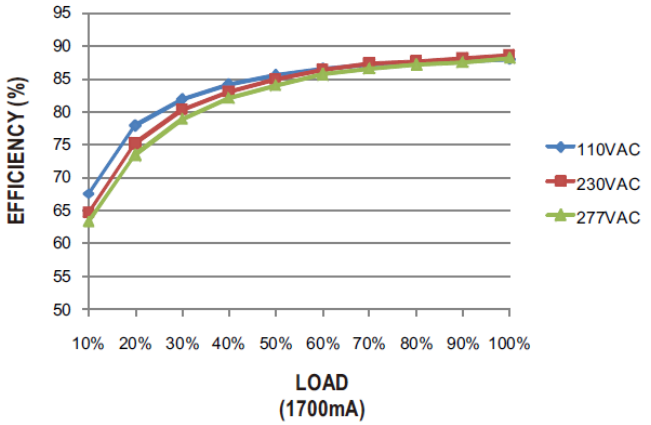




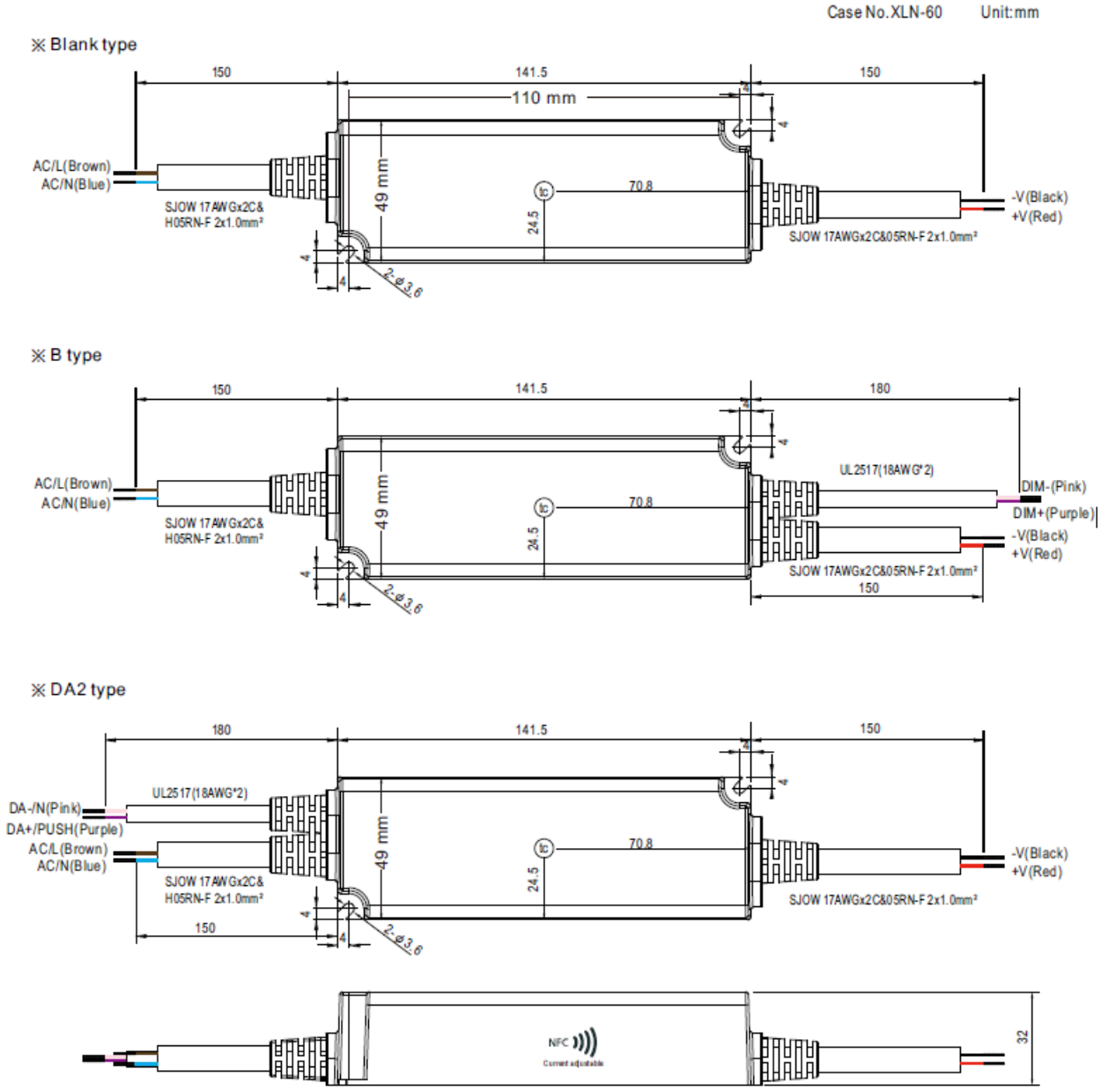
EFFICIENCY vs LOAD

- XLN-60 series possess superior working efficiency that up to 90% can be reached in field applications.
- Tcase at 75℃
- Tcase at 75℃





MECHANICAL SPECIFICATION



Installation Manual

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

Documents / Resources

	[XLN XLN-60 Series 60W Multiple Stage Constant Power Constant Voltage LED Driver](#) [pdf] Owner's Manual XLN-60 Series 60W Multiple Stage Constant Power Constant Voltage LED Driver, XLN-60 Series, 60W Multiple Stage Constant Power Constant Voltage LED Driver, Stage Constant Power Constant Voltage LED Driver, Power Constant Voltage LED Driver, Voltage LED Driver

References

- User Manual

Manuals+, Privacy Policy

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