MEAN WELL XLC-25-12 Multiple Stage Constant Power Constant Voltage LED Driver Installation Guide

Contents

MEAN WELL XLC-25-12 Multiple Stage Constant Power Constant Voltage LED Driver

Specifications:

Model: XLC-25-12-, XLC-25-24-

Output:

- **Rated Voltage:** 12V, 24V
- **Rated Current:** 2.1A, 1.05A
- **Rated Power:** 25.2W

Input:

- **Voltage Range:** 100 ~ 305VAC
- **Frequency Range:** 47 ~ 63Hz

Efficiency: 86%, 88%

Dimensions: 147*40*32mm, 107*40*32mm (L*W*H)

Product Usage Instructions

Installation:

1. Ensure input voltage matches the specified range.
2. Connect the LED driver to the LED module following the correct polarity.
3. Secure the connections and ensure proper insulation.

Dimming Operation:
B type with 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.

NFC Setting:

1. Download the MEAN WELL app from Apple Store or Google Play Store.
2. Approach the LED driver NFC sensing position with your phone and perform sensing.
3. The app will display functional parameters that can be modified as required.
4. Tap the app write button and move the phone antenna close to the NFC sensing position of the LED driver for completion.

FAQ

Q: How can I adjust the output current of the LED driver?
A: The output current level can be adjusted using one of the three methods: applying 0 ~ 10VDC, a 10V PWM signal, or resistance between DIM+ and DIM-.

Q: What is the default password for NFC setting?
A: The default password for NFC setting is provided in the user manual or can be obtained from customer support.

MODELS

XLC-25-S Series
(Independent type)

XLC-25 Series
(Built-in type)

Features

- Constant power mode output with multiple stage selectable by dip switch or NFC setting(H-type)
- Constant voltage mode output (12V/24V)
- Plastic housing with class 11/2 and PFC design
- Flicker free, complying with IEEE 1789/ErP
- Standby power consumption <0.5W
- Meet emergency lighting (EL) application
- 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

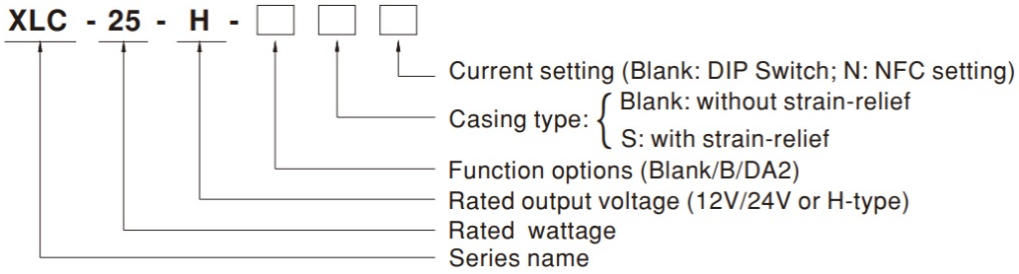
- Recessed Light
- Downlight
- Panel Light
- Commercial Lighting
- Decorative Lighting
- LED strip lighting
- DALI digital Lighting

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

Description

XLC-25 Series is a 25W with constant power and constant voltage output LED driver. It can operate from 110~305V AC and output current ranging between 300 mA to 1050 mA selectable by dip switch or NFC setting. Thanks to high efficiency up to 88%, it is able to operate for -25°C ~90°C case temperature under free air convection. XLC-25 is designed based on latest safety regulations with 3 in 1 and DALI-2 dimming. XLC-25 can also be adjusted for brightness with a push button as a simple way dimming, so it provides the design flexibility for LED Lighting application.

Model Encoding



Type	Function	Note
Blank	H type output current selectable by dip-switch with constant power mode	In stock
	12, 24V Constant voltage output	
B	H type output current selectable by dip-switch and built in 3 in 1 dimming	
DA2	H type output current selectable by dip-switch and built in DALI-2 dimming	

Note:

1. 12V/24V without dimming function.
2. NFC current setting is available for XLC-25-H-N type, others by request, please contact MW sales representative.

SPECIFICATION

MODEL		XLC-25-12-□	XLC-25-24-□
OUTPUT	RATED VOLTAGE	12V	24V
	RATED CURRENT	2.1A	1.05A
	RATED POWER Note.2	25.2W	25.2W
	RIPPLE & NOISE (max.) Note.3	60mVp-p	
	VOLTAGE TOLERANCE Note.4	±4.0%	
	LINE REGULATION	±0.5%	
	LOAD REGULATION	±2.0%	
	SETUP, RISE TIME Note.5	500ms, 100ms/230VAC, 1000ms, 100ms/115VAC	
INPUT	VOLTAGE RANGE	100 ~ 305VAC 141 ~ 431VDC	
	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< 10%(@load 50%/230VAC; @load 75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)	
	EFFICIENCY (Typ.)	86%	88%
	AC CURRENT	0.35A / 115VAC,0.15A / 230VAC,0.15A/277VAC	
	INRUSH CURRENT(Typ.)	COLD START 10A(twidth=100μs measured at 50% Ipeak) at 230VAC; Per NEMA 410	
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	85 units (circuit breaker of type B) / 85 units (circuit breaker of type C) at 230VAC	
	LEAKAGE CURRENT	<0.75mA / 277VAC	
PROTECTION	OVER LOAD	105 ~ 150% rated output power	
		Protection type:Hiccup mode , recovers automatically after fault condition is removed	
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed	
	OVER VOLTAGE	13 ~ 16V	26 ~ 32V
		Shut down and latch off o/p voltage, 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, Z axes	
	OPERATING ALTITUDE	2000 meters	
SAFETY & EMC	SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations; BS EN/EN62384 independent, GB19510.14, GB19510.1, EAC TP TC 004 approved;	
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC	
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH	
	EMC EMISSION	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C(@load 50%) ; BS EN/EN61000-3-3; GB17625.1,GB17743, EAC TP TC 020	
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61547, light industry level(surge immunity Line-Line 1KV), EAC TP TC 020	

OTHERS	FLICKER Note.6	PstLM ≤ 1, SVM ≤ 0.4
	MTBF	xx K hrs min. Telcordia SR-332 (Bellcore) ; xx Khrs min. MIL-HDBK-217F (25℃)
	DIMENSION	147*40*32mm,107*40*32mm (L*W*H)
	PACKING	xx Kg;xxpcs / xxKg /x.xxCUFT
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature. 2. De-rating may be need under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. 3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor. 4. Tolerance: includes set up tolerance, line regulation and load regulation. 5. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time. 6. Measured with XXX LED module at full power. 7. To fulfill requirement of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains. 8. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again. 9. The ambient temperature de-rating of 3.5℃/1000m with fanless models and 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft). 10. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (tc) point (or TMP, per DLC), is about 75℃ or less. 11. For more information, please contact with MEAN WELL sales. ※Product Liability Disclaimer: For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx	

MODEL		XLC-25-H-□□□
OUTPUT	OPEN CIRCUIT VOLTAGE Note.2	60V
	DEFAULT CURRENT	700mA
	CURRENT ADJ.RANGE (BY DIP SWITCH OR NFC)	0.3~1.05A
	CONSTANT CURRENT REGION Note.3	9~54V
	RATED POWER Note.4	25W
	CURRENT RIPPLE	<4%
	CURRENT TOLERANCE	±5%
	DIMMING RANGE	0~100%
	SETUP, RISE TIME Note.5,6	500ms, 100ms/230VAC, 1000ms, 100ms/115VAC
INPUT	VOLTAGE RANGE	100 ~ 305VAC 141 ~ 431VDC
	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< 10%(@load 50%/230VAC; @load 75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)
	EFFICIENCY (Typ.) Note.7	88%
	AC CURRENT	0.75A / 115VAC,0.35A / 230VAC, 0.3A/277VAC
	INRUSH CURRENT(Typ.)	COLD START 10A(twidth=100μs measured at 50% Ipeak) at 230VAC; Per NEMA 410
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	85 units (circuit breaker of type B) / 85 units (circuit breaker of type C) at 230VAC
	LEAKAGE CURRENT	<0.75mA / 277VAC
	STANDBY POWER CONSUMPTION Note.8	Standby power consumption<0.5W(Dimming off)
PROTECTION	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed
	OVER TEMPERATURE	Blank & B type: De-rating to lowest output level. Recovers automatically after fault condition is removed.
		DA2 type: Stage 1: De-rating to 75% loading; Stage 2: De-rating to 50% loading. 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
	OPERATING ALTITUDE	2000 meters

SAFETY & EMC	SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations; BS EN/EN62384 independent, GB19510.14, GB19510.1, EAC TP TC 004 approved;
	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	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C(@load 50%) ; BS EN/EN61000-3-3; GB17625.1,GB17743, EAC TP TC 020
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61547, light industry level(surge immunity Line-Line 1KV), EAC TP TC 020
OTHERS	FLICKER Note.9	PstLM ≤ 1, SVM ≤ 0.4
	MTBF	xx K hrs min. Telcordia SR-332 (Bellcore) ; xx Khrs min. MIL-HDBK-217F (25℃)
	DIMENSION	147*40*32mm,107*40*32mm (L*W*H)
	PACKING	xx Kg;xxpcs / xxKg /x.xxCUFT

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. Output hiccups under no-load condition.
3. Please refer to "DRIVER METHODS OF LED MODULE".
4. De-rating may be need under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
5. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
6. Based on IEC 62386-101/102 DALI power on timing and interruption regulations, the set up time needs to test with a DALI controller w hich can support for DALI power on function, otherwise the startup time will be higher than 0.5 second.
7. Efficiency is measured at 500mA/50V output set by dip-switch or NFC.
8. Standby power consumption is measured at 180~230VAC.
9. Measured with XXX LED module at full power.
10. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
11. The ambient temperature de-rating of 3.5℃/1000m with fanless models and 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
12. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (tc) point (or TMP, per DLC), is about 75℃ or less.
13. For more information, please contact with MEAN WELL sales.

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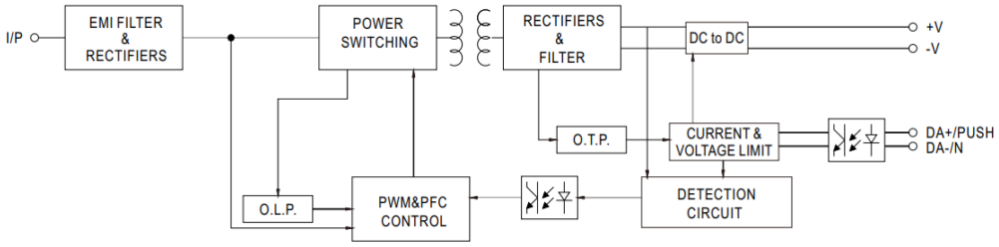
BLOCK DIAGRAM

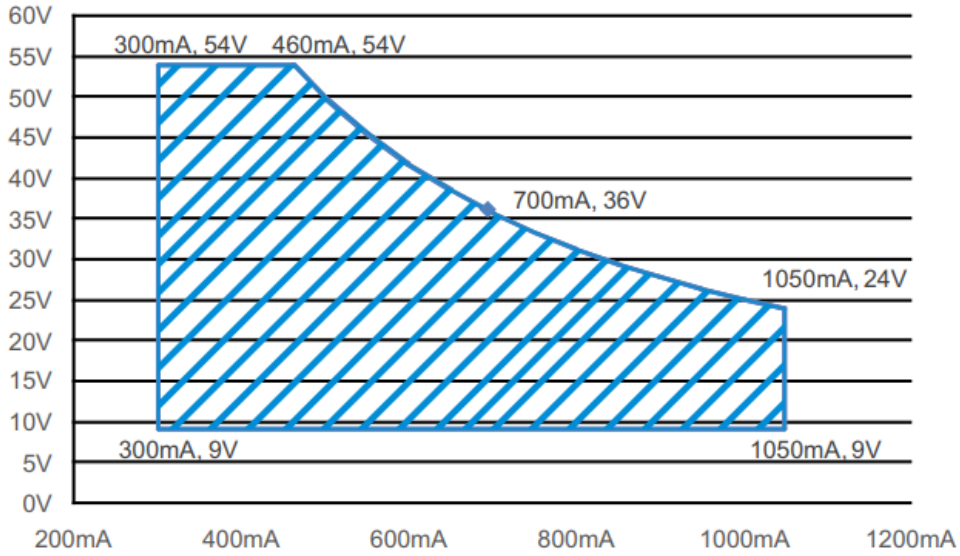


DRIVING METHODS OF LED MODULE

※ I-V Operating Area

◎ **XLC-25-H**

For 25W application



CONSTANT POWER TABLE

XLC-25-H is a multiple-stage constant power driver, selection of output current through DIP switch or NFC setting is exhibited below.

Vo	Io DIP S.W	1	2	3
9~54V	300mA	—-	—-	—-
9~54V	350mA	—-	—-	ON
9~54V	400mA	—-	ON	—-
9~50V	500mA	—-	ON	ON
9~42V	600mA	ON	—-	—-
9~36V	700mA(default)	ON	—-	ON
9~28V	900mA	ON	ON	—-
9~24V	1050mA	ON	ON	ON

Note:

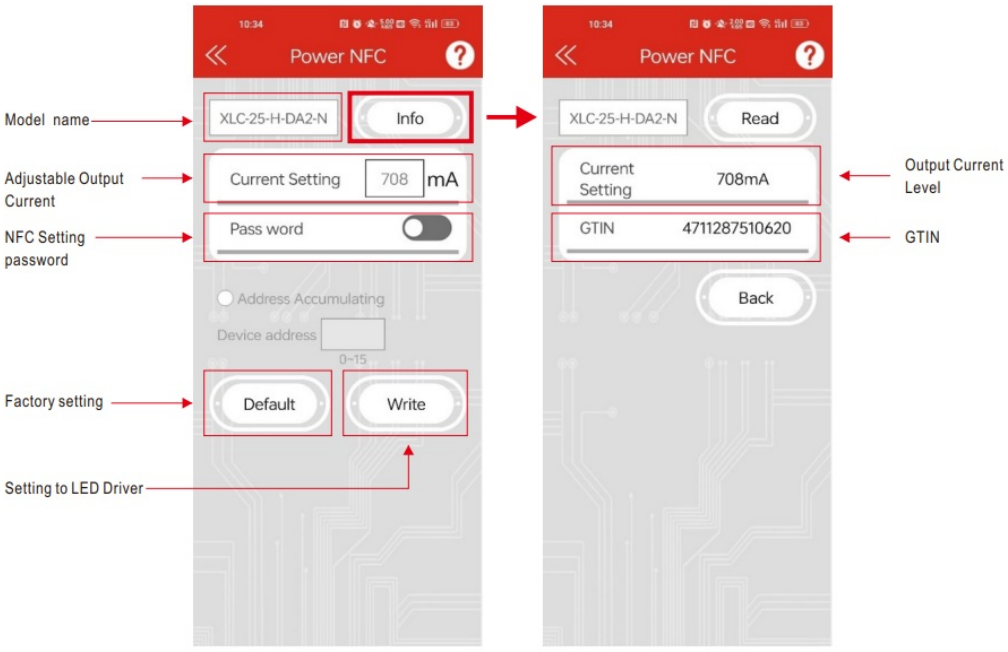
1. .The operating voltage range which show on this table is recommend to use.
2. NFC current setting function by request.

NFC Function Description(By request)

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 AndroidTM 4.1 or IOS12 updates.
- Steps for setting output current via NFC
  1. Download Meanwell APP on mobile device or mobile phone, and enable 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

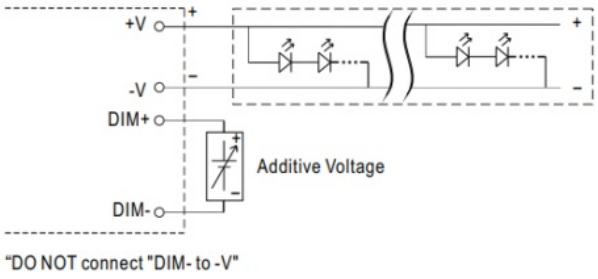
DIMMING OPERATION

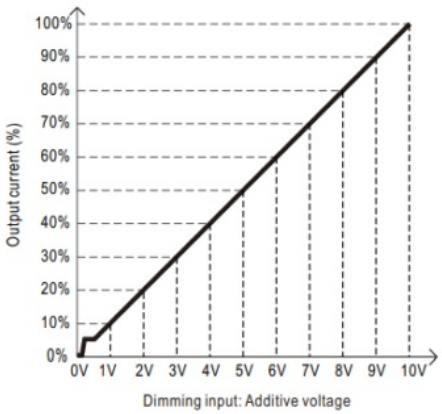
B type
※ 3 in 1 dimming function

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:

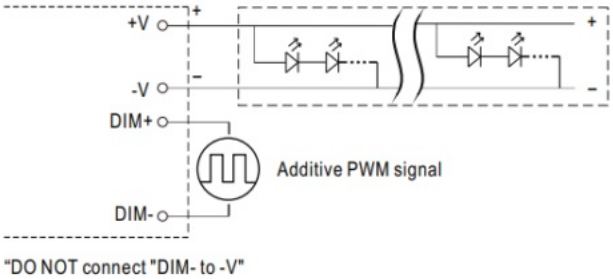
  0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100μA (typ.)

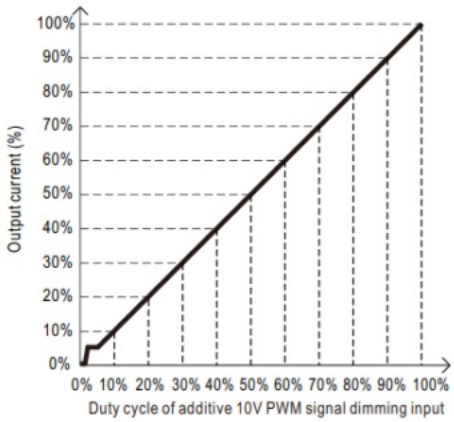
Applying additive 0 ~ 10VDC



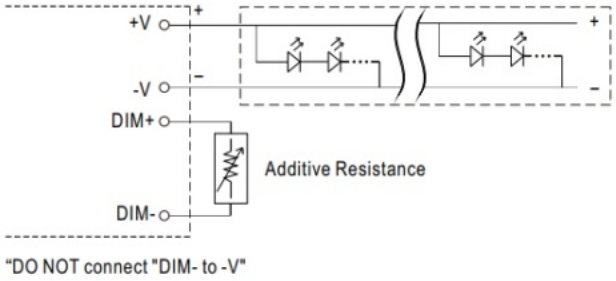


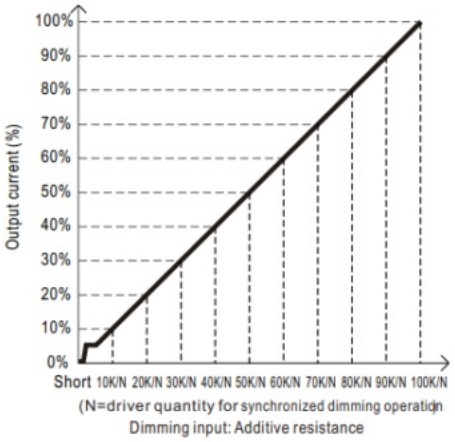
Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):





Applying additive resistance: 0~100k



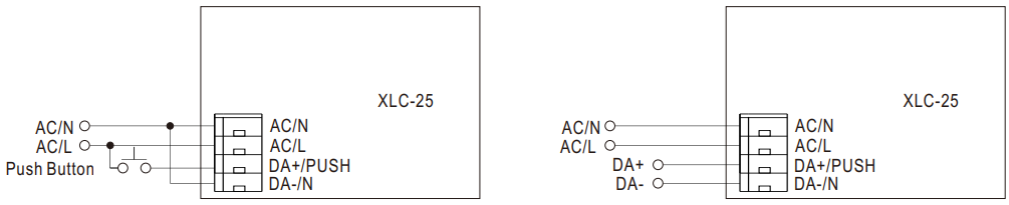


Note :

1. Min. dimming level is about 6% and the output current is not defined when 0% < Iout<6%.
2. The output current could drop down to 0% when dimming input is about 0kQ or 0Vdc, or 10V PWM signal with 0% duty cycle.

DA2 type (DALI-2 digital dimming function)

Input wiring diagram

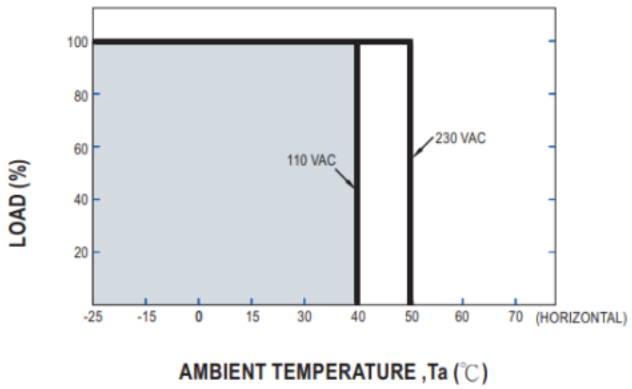


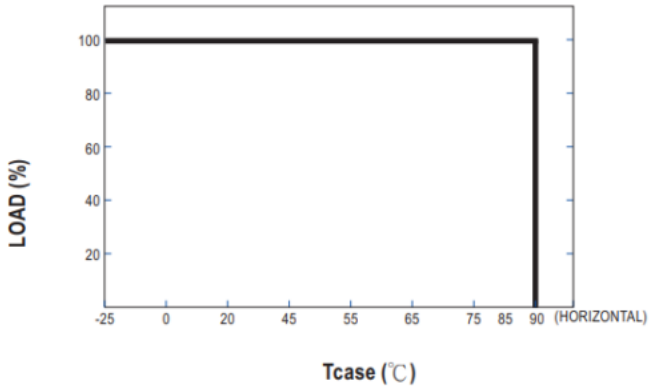
PUSH dimming (primary side)

- 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.

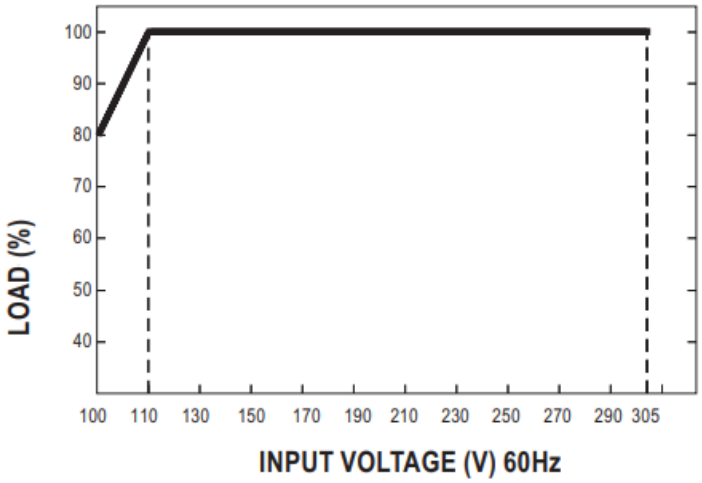
Action	**Action duration**	**Function**
Short Push	0.1~1s	Turn ON-OFF the driver
Double Click	Click twice in 1.5s	Set up the dimming level to 100%
Long Push	1.5~10s	Every Long Push changes the dimming direction, dimming up or down

OUTPUT LOAD vs TEMPERATURE



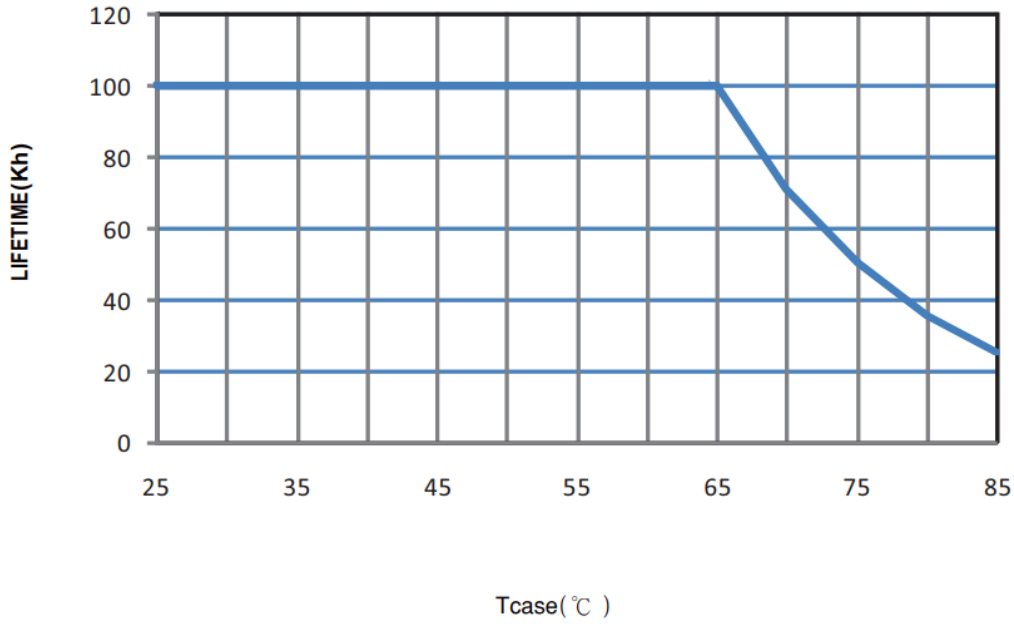


STATIC CHARACTERISTIC



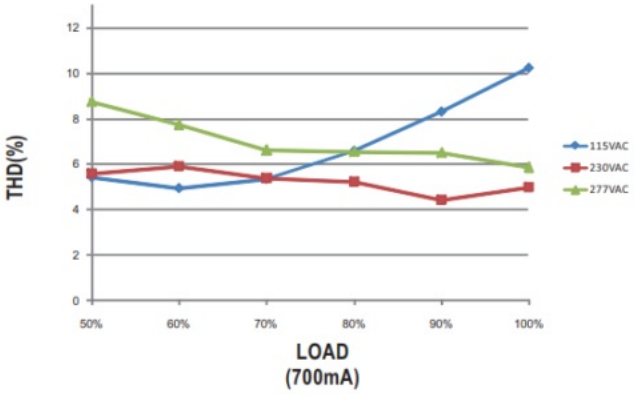
De-rating is needed under low input voltage.

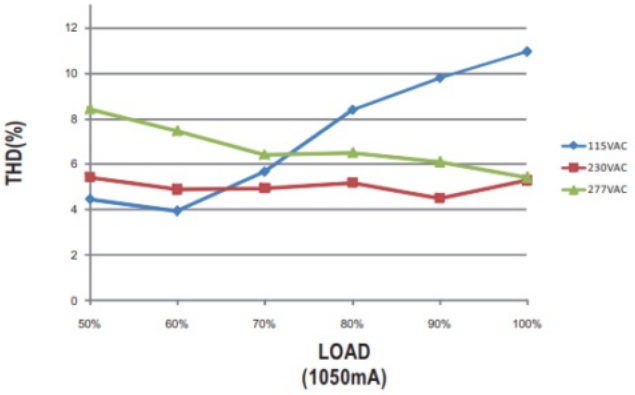
LIFE TIME



TOTAL HARMONIC DISTORTION (THD)

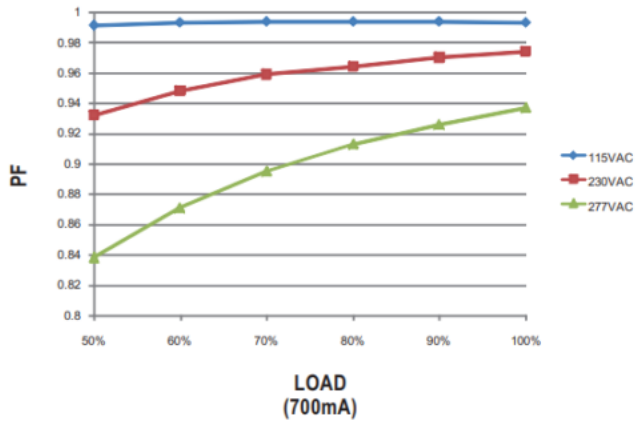
XLC-25-H,Tcase at 75℃

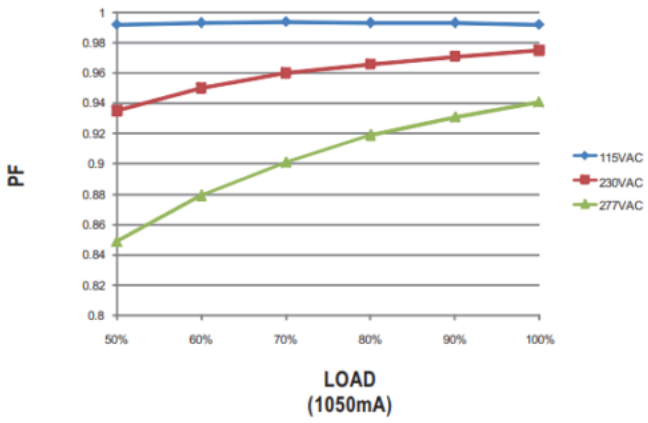




POWER FACTOR (PF) CHARACTERISTIC

XLC-25-H,Tcase at 75°C

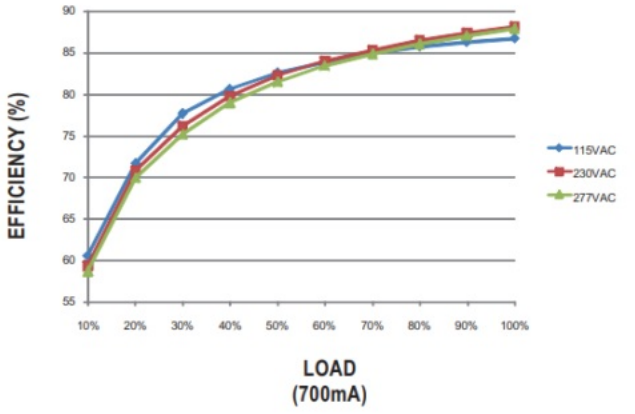


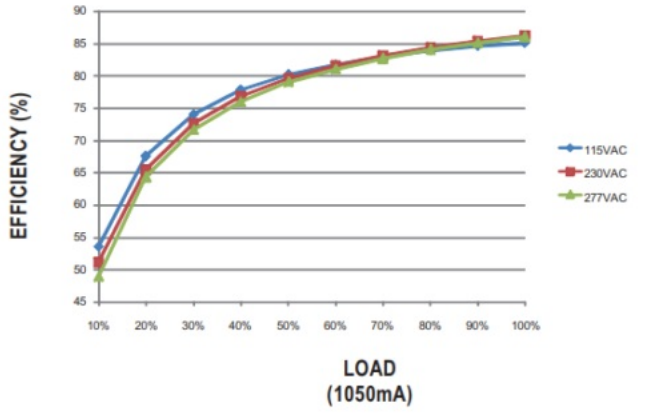


EFFICIENCY vs LOAD

XLC-25 series possess superior working efficiency that up to 88% can be reached in field applications.

- XLC-25-H,Tcase at 75°C
- XLC-25-H,Tcase at 75°C



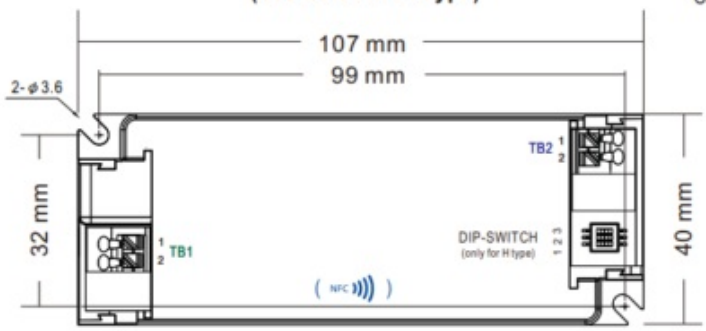


MECHANICAL SPECIFICATION

(XLC-25 Built-in Type)

Case No.XLC-25 Unit:mm

※ Blank type



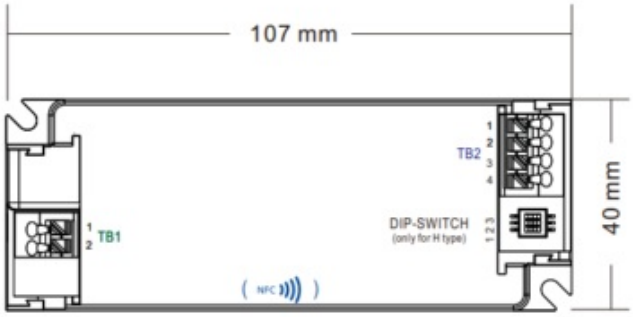
※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L

※ Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	-V

※ B type



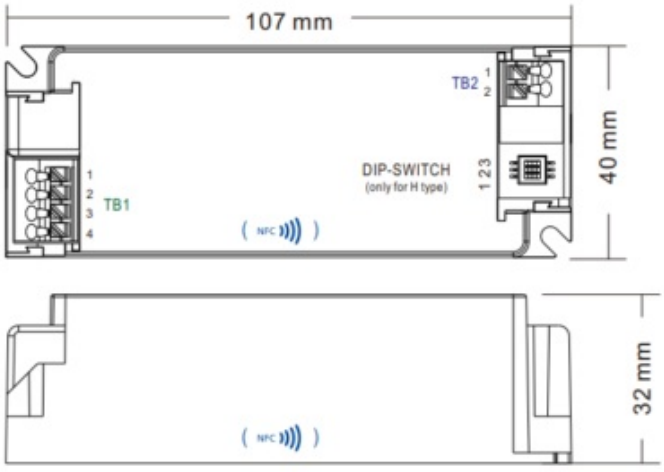
※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L

※ Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	-V
3	DIM+
4	DIM-

※ DA2 type



※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L
3	DA+/PUSH
4	DA-/N

※ Terminal Pin No. Assignment(TB2)

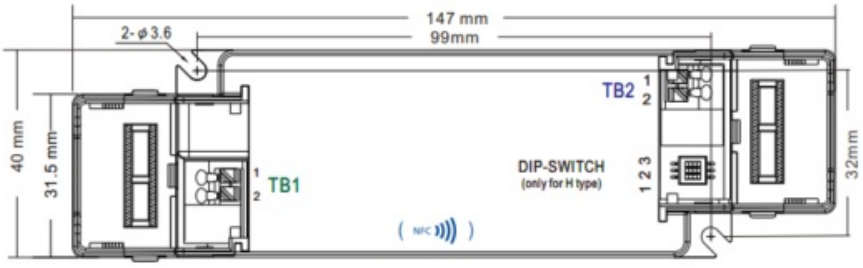
Pin No.	Assignment
1	+V
2	-V

Item	Order No.	Quantity
Strain-relief cap	1**3XLC-RD 1**3XLC-RT	Each*2 pcs for 1 Set

(XLC-25-S Independent Type)

Case No.XLC-25-S Unit:mm

※ Blank type



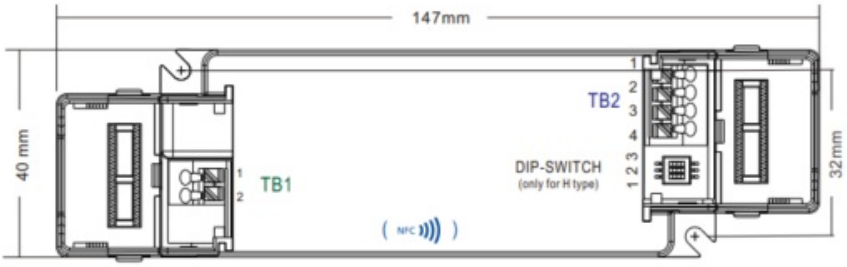
※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L

※ Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	-V

※ B type



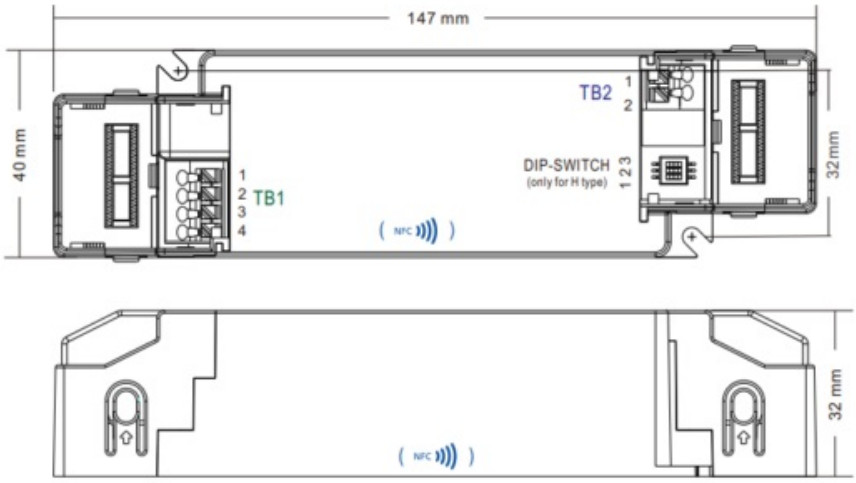
※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L

※ Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	-V
3	DIM+
4	DIM-

※ DA2 type



※ Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	AC/N
2	AC/L
3	DA+/PUSH
4	DA-/N

※ Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	-V

Installation Manual

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

Documents / Resources

	**MEAN WELL XLC-25-12 Multiple Stage Constant Power Constant Voltage LED Driver** [pdf] Installation Guide XLC-25-12, XLC-25-24, XLC-25-H60V, XLC-25-12 Multiple Stage Constant Power Constant Voltage LED Driver, XLC-25-12, Multiple Stage Constant Power Constant Voltage LED Driver, Constant Power Constant Voltage LED Driver, Constant Voltage LED Driver, Voltage LED Driver, LED Driver, Driver

References

- **User Manual**