MEAN WELL LCM-40KN-350mA Multiple Stage Constant Current Mode LED Driver Installation Guide

Contents

MEAN WELL LCM-40KN-350mA Multiple Stage Constant Current Mode LED Driver

Specifications

- **Model:** LCM-40KN
- **Output Current Level:** 350mA, 500mA, 600mA, 700mA (default)
- **Rated Power:** 42W
- **DC Voltage Range:** 2 ~ 100V, 2 ~ 80V, 2 ~ 67V, 2 ~ 57V
- **Open Circuit Voltage (max.):** 110V, 65V
- **Current Ripple:** 5.0% max. @ rated current
- **Input Voltage Range:** 180 ~ 295VAC, 220 ~ 392VDC
- **Frequency Range:** 47 ~ 63Hz
- **Power Factor (Typ.):** PF0.975/230VAC, PF0.95/277VAC @ full load
- **Efficiency (Typ.):** 90%
- **Inrush Current (Typ.):** 20A (twidth=310s measured at 50% Ipeak) at 230VAC

Product Usage Instructions

DIP Switch Table

- The current level is selectable via the DIP switch. Please refer to the DIP SWITCH TABLE section in the manual for instructions on how to set the desired current level.

Static Characteristic

- Understand the relationship between output load and temperature by referring to the OUTPUT LOAD vs TEMPERATURE graph provided in the manual.

Total Harmonic Distortion (THD)

- Refer to the TOTAL HARMONIC DISTORTION (THD) section to ensure THD remains below 20% at load 75%.

Power Factor (PF) Characteristic

- Check the POWER FACTOR (PF) CHARACTERISTIC section to verify the power factor under different load conditions and input voltages.

FAQ

1. **Can I use a different brand of NTC resistor with this LED driver?**
    - MEAN WELL does not offer the NTC resistor, and all measurements are based on using the THINKING TTC03 series. If using another brand of NTC resistor, ensure to check the temperature curve first.
2. **What happens if the temperature compensation function is in use?**
    - The KNX control, dimming, and synchronization function of the driver will be invalid when the temperature compensation function is activated.

Features

- Constant Current mode output with multiple levels selectable by dip switch
- KNX/EIB protocol
- Flicker-free design
- Support emergency lighting (EL)
- Integrated constant light output
- Integrated KNX push-button interface
- Synchronization up to 10 units
- **Functions:** Manual dim, operation hours, power consumption feedback, log/linear curve selection…etc
- 3 years warranty

Applications

- LED indoor lighting
- LED office lighting
- LED architectural lighting
- LED panel lighting

GTIN CODE

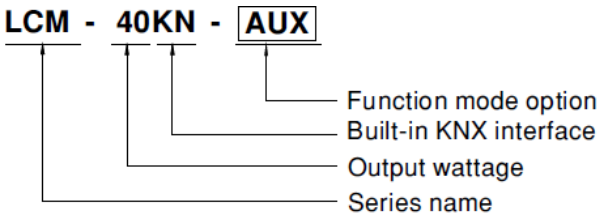
- MW Search: **https://www.meanwell.com/serviceGTIN.aspx**

Description

LCM-40KN series is a 40W AC/DC constant current mode output LED driver featuring the multiple levels selectable by the dip switch and the KNX interface to avoid using the complicated KNX-DALI gateway. LCM-40KN operates from 180 ~ 295VAC and offers different current levels ranging between 350mA and 1050mA. Thanks to the high efficiency of up to 90%, with the fanless design, the entire series can operate for -30°C ~+90°C case

temperature under free air convection. In addition, LCM-40KN is equipped with push dimming and synchronization to provide optimal design flexibility for an LED lighting system.

Model Encodina



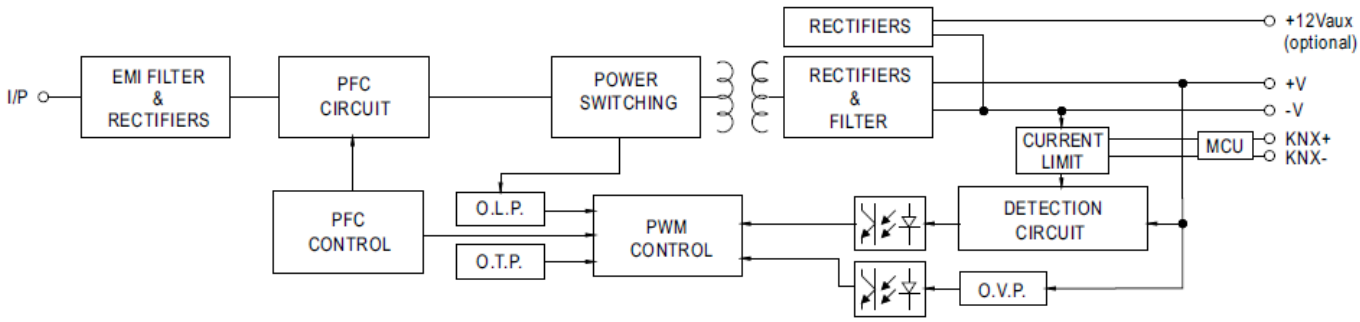
Type	Function	Note
Blank	KNX and push dimming ,with standby power consumption <0.5W	In Stock
AUX	KNX and push dimming, with standby power consumption <1.2W and Auxiliary DC output	By request

SPECIFICATION

MODEL		LCM-40KN-☐					
OUTPUT	CURRENT LEVEL	Current level selectable via DIP switch, please refer to"DIP SWITCH TABLE" section					
		350mA	500mA	600mA	700mA(default)	900mA	1050mA
	RATED POWER	42W					
	DC VOLTAGE RANGE	2 ~ 100V	2 ~ 80V	2 ~ 67V	2 ~ 57V	2 ~ 45V	2 ~ 40V
	OPEN CIRCUIT VOLTAGE (max.)	110V			65V		
	CURRENT RIPPLE Note.5	5.0% max. @rated current					
	CURRENT TOLERANCE	±5%					
	AUXILIARY DC OUTPUT	Nominal 12V(deviation 11.4~12.6V)@50mA for AUX-Type only					
	SETUP TIME Note.3	500ms / 230VAC					
INPUT	VOLTAGE RANGE Note.2	180 ~ 295VAC 220 ~ 392VDC (Please refer to "STATIC CHARACTERISTIC" section)					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF≧0.975/230VAC, PF≧0.95/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)					
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≧75%) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)					
	EFFICIENCY (Typ.) Note.4	90%					
	AC CURRENT (Typ.)	0.23A/230VAC					
	INRUSH CURRENT (Typ.)	COLD START 20A(t_{width}=310μs measured at 50% I_{peak}) at 230VAC; Per NEMA 410					
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	21 units (circuit breaker of type B) / 35 units (circuit breaker of type C) at 230VAC					
	LEAKAGE CURRENT	<0.5mA / 240VAC					
	STANDBY POWER CONSUMPTION Note.6	<0.5W for Blank-Type, <1.2W for AUX-Type					

SAFETY & EMC	SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13, BS EN/EN62384 independent, BIS IS15885(Part2/Sec13), EAC TP TC 004 approved, GB19510.14 and GB19510.1(by request) ; According to BS EN/EN50172, BS EN/EN 60598-2-22, BS EN/EN61347-2-13 appendix J suitable for emergency installations(EL)(AC Input: 200-240Vac)
	KNX STANDARDS	Certified protocol
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH
	EMC EMISSION Note.7	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C(@load≧40%) ; BS EN/EN61000-3-3; GB/T 17743, GB17625.1 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 2KV), EAC TP TC 020
OTHERS	MTBF	1764.6K hrs min. Telcordia SR-332 (Bellcore) ; 190.4K hrs min. MIL-HDBK-217F (25℃)
	DIMENSION	123.5*81.5*23mm (L*W*H)
	PACKING	0.24Kg ; 54pcs/15Kg/1.12CUFT
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 “STATIC CHARACTERISTIC” sections for details. 3. 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. 4. Efficiency is measured at 500mA/80V output set by DIP switch. 5. Current ripple is measured 50%~100% of maximum voltage under rated power delivery. 6. Standby power consumption is measured at 180~230VAC. 7. 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. (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf) 8. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft). 9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains. ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx	

BLOCK DIAGRAM



- **PFC fosc:** 60KHz
- **PWM fosc:** 80KHz

DIP SWITCH TABLE

LCM-40KN is a multiple-stage constant current driver, the selection of output current through the DIP switch is exhibited below.

Io DIP S.W.	1	2	3	4	5	6	Max. LED voltage
350mA	—-	—-	—-	—-	—-	—-	100V
500mA	ON	—-	—-	—-	—-	—-	80V
600mA	ON	ON	—-	—-	—-	—-	67V
700mA(factory default)	ON	ON	ON	—-	—-	ON	57V
900mA	ON	ON	ON	ON	—-	ON	45V
1050mA	ON	ON	ON	ON	ON	ON	40V

More current options through the DIP switch are exhibited below.

Io DIP S.W.	1	2	3	4	5	6	Max. LED voltage
450mA	—-	ON	—-	—-	—-	—-	78V
550mA	—-	—-	—-	ON	—-	—-	73V
650mA	ON	—-	—-	—-	ON	—-	62V
750mA	ON	ON	—-	—-	ON	ON	53V
800mA	ON	ON	—-	ON	—-	ON	50V
850mA	ON	ON	ON	—-	ON	ON	47V
950mA	ON	ON	—-	ON	ON	ON	42V

Note: The max. LED voltage connected at the output should be always less than the table above.

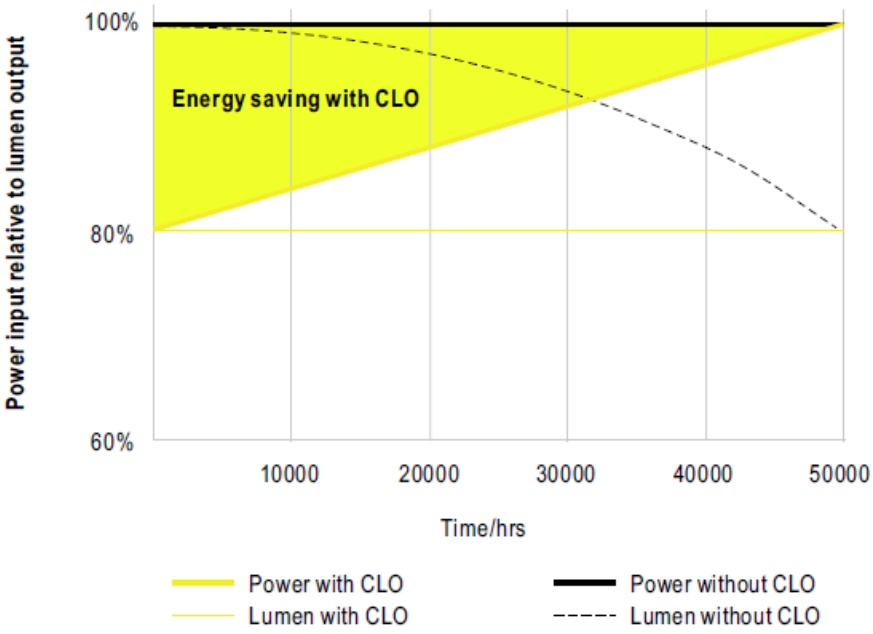
DIMMING OPERATION

KNX interface

- Apply KNX Bus cable between KNX+ and KNX-
- The application program(database) can be downloaded via Online Catalogs from ETS or via **http://www.meanwell.com/productCatalog.aspx**

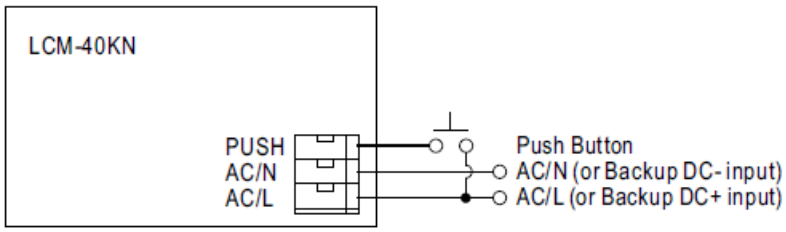
Parametrization options	Description
Switch functions	·Turn on brightness ·Dimming speed for turn on/off ·Switch telegram and status ·Switch on/off delay
Dimming	·Dimming speed for 0~100% ·Allow switch on via relative dimming ·Push dimming with AC input port ·Block object for push dimming
Brightness value	·Dimming speed for transition brightness values ·Permit set switch on and off brightness via value ·Brightness value and status
Fault message	·Lamp fault ·AC/DC input monitor fault messages
Other functions	·Reaction on KNX voltage failure/recovery ·Power-On level ·Dimming curve select(linear/log) ·Synchronous dimming output ·Block function(Block1&Block2) ·Staircase lighting function(multi-stage switch-off)
General function	·Cyclic monitoring telegram(In operation)
8 Scenes	·Recall and save via KNX with 8-bit telegram
Operating hours & CLO	·Operating hours counter ·Constant light out(5 scheduled divisions)
Power consumption feedback	·Power consumption report

CONSTANT LIGHT OUTPUT



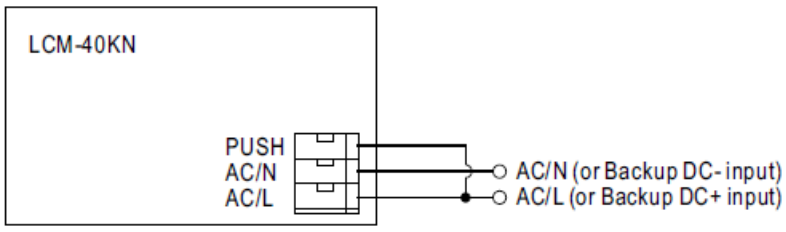
PUSH dimming or AC/DC input monitor(Primary side)

PUSH dimming



- KNX bus needs to be connected when using PUSH Dimming
- For the detailed function of PUSH dimming, please refer to the database.
- The maximum length of the cable between the push button and the driver is 20 meters.
- The mechanical push button can be connected only between the PUSH terminal, as displayed in the diagram, and AC/L (in brown or black); it will lead to a short circuit if it is connected to AC/N.
- In case the PUSH dimming is set locally, up to 10 drivers can perform the PUSH dimming at the same time when utilizing one common push button.
- In case the PUSH dimming is set independently via ETS, the number of drivers is done through group address and determined by the ETS project designer.

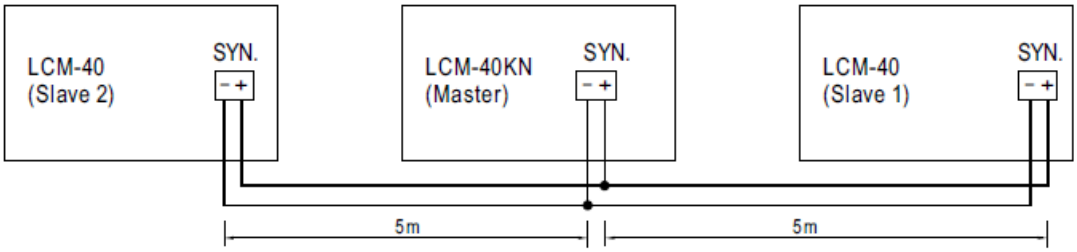
AC/DC input monitor



- KNX bus needs to be connected when using an AC/DC input monitor
- For the detailed function of the AC/DC input monitor(emergency lighting), please refer to the database and instruction manual.

SYNCHRONIZATION OPERATION

- **Synchronization up to 10 drivers (1 master** + 9 slaves)
- **Dimming operating range:** 6%~100%
- **Sync cable length:** < 5m
- **Sync cable type:** Flat cable
- **Sync cable cross-section area**: 22 – 24 AWG (0.2-0.3mm*)

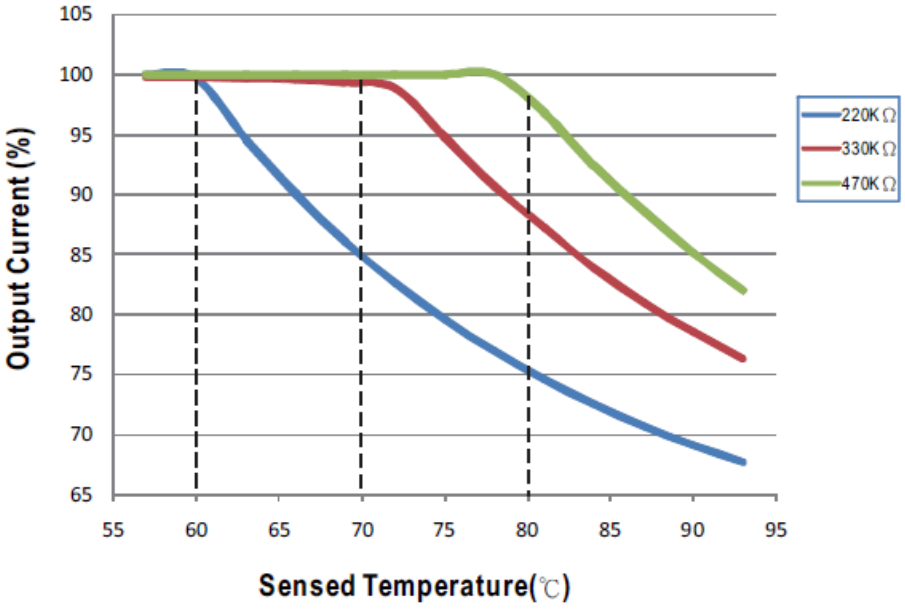


- **NOTE:** Min. Dimming the operating range depends on the database setting.

TEMPERATURE COMPENSATION OPERATION

LCM-40KN has a built-in temperature compensation function; by connecting a temperature sensor (NTC resistor) between the +NTC / -NTC terminal of LCM-40KN and the detecting point on the lighting system or the surrounding environment, the output current of LCM-40KN could be correspondingly changed, based on the sensed temperature, to ensure the long life of LED.

NTC derating curve



Sensed Temperature(C)

LCM-40KN can still be operated normally when the NTC resistor is not connected and the value of the output current will be the current level selected through the DIP switch.

NTC reference:

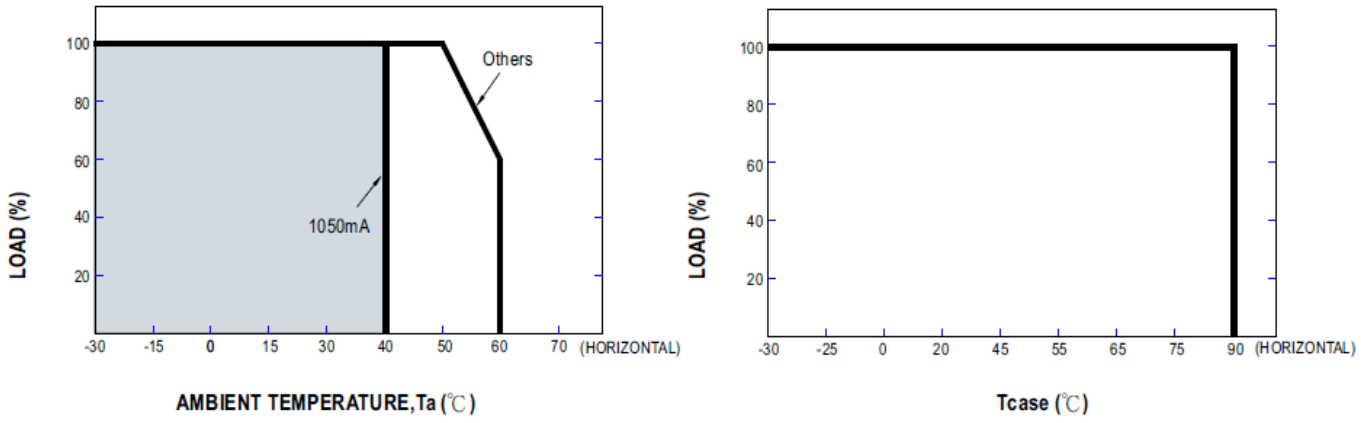
NTC resistance	Output Current
220K	< 60°C, 100% of the rated current (corresponds to the setting current level) > 60°C, output current begins to reduce, please refer to the curve for details.
330K	< 70°C, 100% of the rated current (corresponds to the setting current level) > 70°C, output current begins to reduce, please refer to the curve for details.
470K	< 80°C, 100% of the rated current (corresponds to the setting current level) > 80°C, output current begins to reduce, please refer to the curve for details.

Notes:

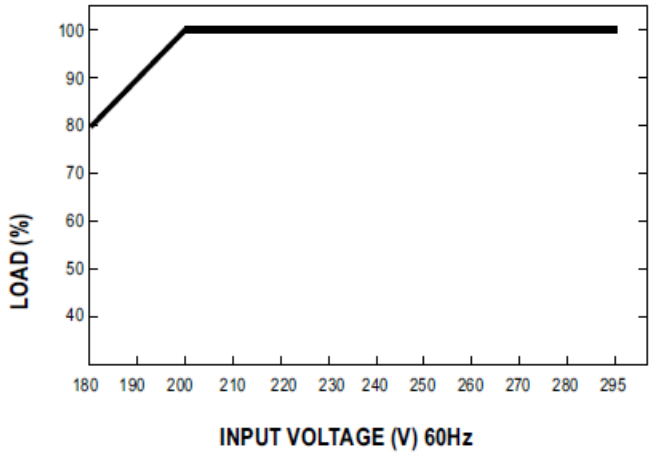
1. MEAN WELL does not offer the NTC resistor and all the data above are measured by using the THINKING TTC03 series.
2. If other brands of NTC resistors are applied, please check the temperature curve first.

KNX control, dimming and synchronization functions of the driver will be invalid when the “temperature compensation” function is in use.

OUTPUT LOAD vs TEMPERATURE



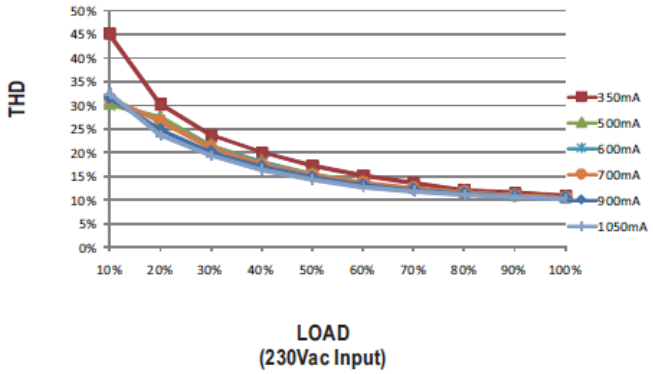
STATIC CHARACTERISTIC

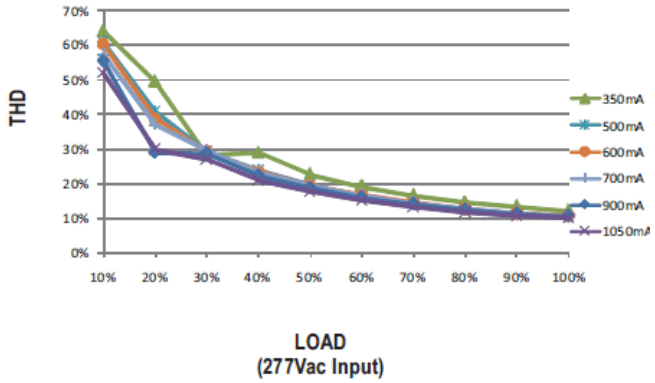


※ De-rating is needed under low input voltage.

TOTAL HARMONIC DISTORTION (THD)

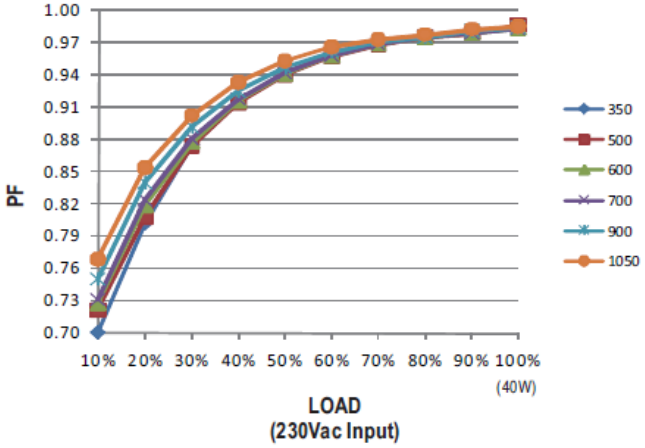
※ Tcase at 80°C

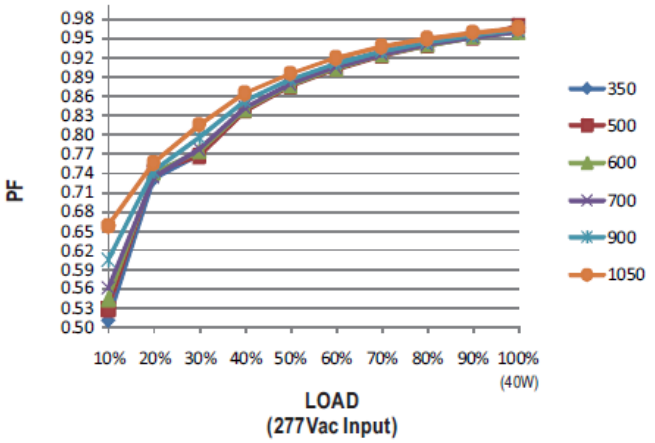




POWER FACTOR (PF) CHARACTERISTIC

Tcase at 80°C

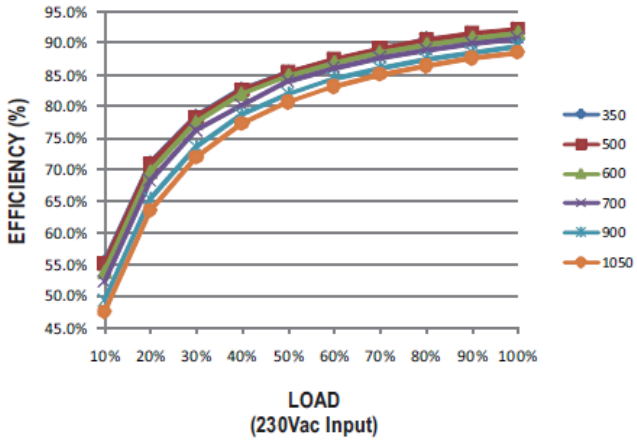


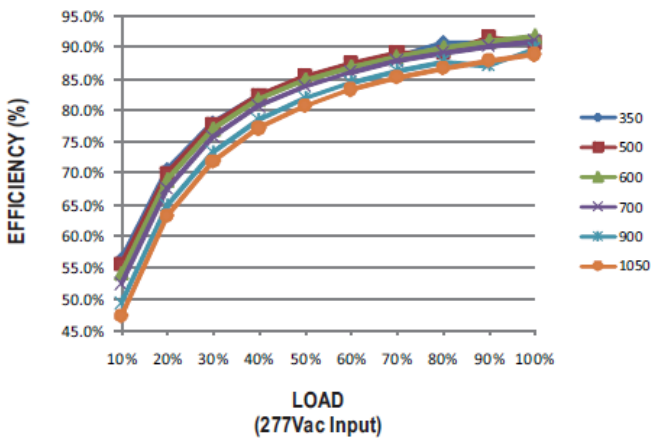


EFFICIENCY vs LOAD

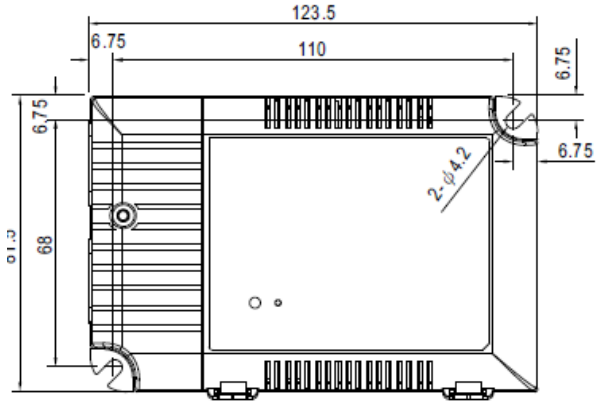
LCM-40KN series possess superior working efficiency that up to 90% can be reached in field applications.

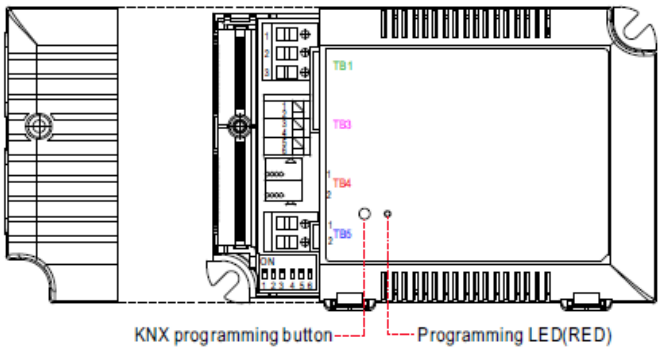
※ Tcase at 80°C

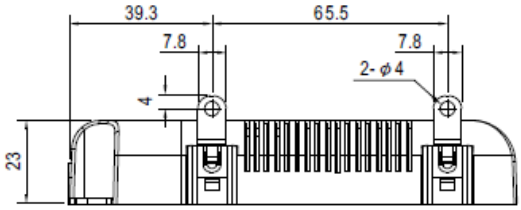


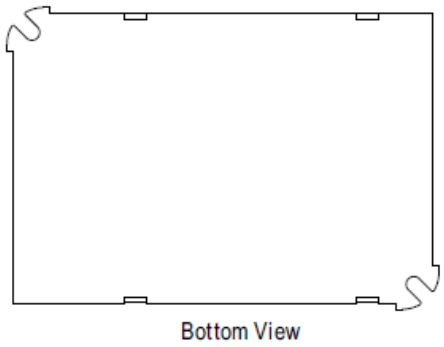


MECHANICAL SPECIFICATION









Terminal Pin No. Assignment(TB1)

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

Terminal Pin No. Assignment(TB3)

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment
1	+FAN(optional)	3	+NTC	5	+SYN
2	-FAN(optional)	4	-NTC	6	-SYN

Pin1(+FAN) / Pin2(-FAN) is the Auxiliary DC output for the optional model LCM-40KN-AUX; it can be used to drive the fan.

Terminal Pin No. Assignment(TB4)

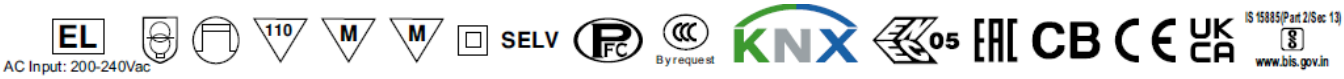
Pin No.	Assignment
1	KNX-
2	KNX+

Terminal Pin No. Assignment(TB5)

Pin No.	Assignment
1	+V
2	-V

Installation Manual

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



Documents / Resources

	MEAN WELL LCM-40KN-350mA Multiple Stage Constant Current Mode LED Driver [pdf] Installation Guide LCM-40KN-350mA, LCM-40KN-500mA, LCM-40KN-600mA, LCM-40KN-700mA, LCM-40KN-350mA Multiple Stage Constant Current Mode LED Driver, LCM-40KN-350mA, Multiple Stage Constant Current Mode LED Driver, Constant Current Mode LED Driver, Mode LED Driver, LED Driver, Driver

References

- User Manual