

LCM-40KN Series

40W Multiple-Stage Constant Current LED Power Supply



Case: 8018JN
123.5 x 81.5 x 23mm

Features

- Constant Current mode output with multiple levels selectable by dip switch
- KNX Protocol
- Support emergency lighting
- Integrated constant light output
- Integrated KNX push button interface
- Synchronisation up to 10 units
- Functions: Manual dim, operation hours, power consumption feedback, log/linear curve selection, etc.
- 3 years warranty

TYPE	FUNCTION
Blank	KNX and push dimming, with standby power consumption <0.5W
AUX	KNX and push dimming, with standby power consumption <1.2W and Auxiliary DC output

LCM - 40KN - AUX
Series name Output wattage Function mode option



Specification

INPUT	Inrush Current (typ.)	LCM-40KN-□					
	Voltage	180 ~ 295VAC 220 ~ 417VDC (please refer to 'Static Characteristic' section)					
	Frequency	47 ~ 63 Hz					
	Power Factor	PF ≥ 0.975/230VAC, PF ≥ 0.95/277VAC at rated power (Please refer to "Power Factor Characteristic" curve)					
	Total Harmonic Distortion	Total harmonic distortion will be lower than 20% when output loading is 75% or higher					
	AC Current (Typ.)	0.23A/230VAC					
	Inrush Current	Cold start 20A(tw=310µs measured at 50% Ipeak) at 230VAC; per NEMA410					
	Max. No. of PSUs on 16A Circuit Breaker	21 Units (Circuit Breaker of type B) / 35 units (Circuit breaker of type C) at 230VAC					
	Standby Power Consumption	<0.5W for Blank-Type, <1.2W for AUX-Type					
	Leakage Current	<0.5mA/240VAC					
Efficiency	90%						
OUTPUT	Current Level	Current level selectable via DIP switch, please refer to 'DIP Switch Table' section					
		350mA	500mA	600mA	700mA (default)	900mA	1050mA
	DC Voltage Range	2 ~ 100V	2 ~ 80V	2 ~ 67V	2 ~ 57V	2 ~ 45V	2 ~ 40V
	Rated Power	42W					
	Open Circuit Voltages	110V			65V		
	Ripple Current	±5.0% max. @ rated current					
	Current Tolerance	±5.0%					
	Auxiliary DC Output	Nominal 12V (deviation 11.4 - 12.6V) at 50mA for AUX type only					
	Set Up, Rise Time	500ms/230VAC					
	Short Circuit	Constant current limiting, recovers automatically after fault condition is removed					
PROTECTION	Over Voltage	110 ~ 130V					
		Shut down o/p voltage, re-power on to recover					
	Over Temperature	Shut down o/p voltage, re-power on to recover					
FUNCTION	Dimming	Please see "Dimming Operation"					
	Synchronisation	Please see "Synchronisation Operation"					
	Temp. Compensation	By external NTC, please refer to 'Temperature Compensation Operation'.					
ENVIRONMENT	Working Temperature	Tcase = -30 ~ ±90°C (Please refer to 'Output load vs Temperature' section)					
	Max Case Temp.	Tcase = +90°C					
	Working Humidity	20 ~ 90% RH non-condensing					
	Storage Temperature	-40 ~ +80C, 10 ~ 95% RH					
	Temp. Coefficient	±0.03%/°C (0-50°C)					
SAFETY & EMC	Vibration	10 ~ 500Hz, 2G 10 min./1cycle, period for 60min. each long X, Y, Z axes					
	Safety Standards	ENEC EN61347-1, EN61347-2-13, EN62384 independent, GB19510.14, GB19510.1, EAC TP TC 004 approved					
	KNX Standards	Certified protocol					
	Withstand Voltage	I/P-O/P:3.75KVAC					
	Isolation Resistance	I/P-O/P:>100M Ohms / 500VDC / 25°C / 70% RH					
	EMC Emission	Compliance to EN55015, EN61000-3-2 Class C(@load≥40%); EN61000-3-3; GB17625.1, GB17743, EAC TP TC 020					
	EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level(surge immunity Line-Line 2KV), EAC TP TC 020					
	MTBF	193.6K hrs min. MIL-HDBK-217F (25°C)					
OTHERS	Packing	0.24kg; 54pcs/15Kg/1.12CUFT					

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Derating may be needed under low input voltage. Please check the static characteristics for more details.
3. Length of set up time is measured at first cold start. Turning the power supply ON/OFF 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 at 50%~100% of maximum voltage under rated power delivery.
6. Standby power consumption is measured at 180~230VAC.
7. The power supply 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.
8. The ambient temperature derating of 3.5°C/1000m is needed for operating altitude greater than 2000m (6500ft).

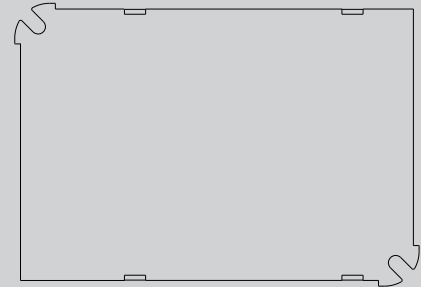
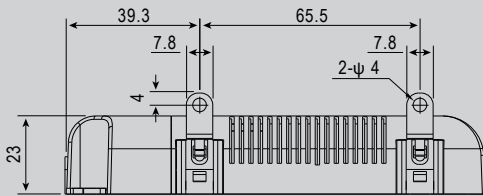
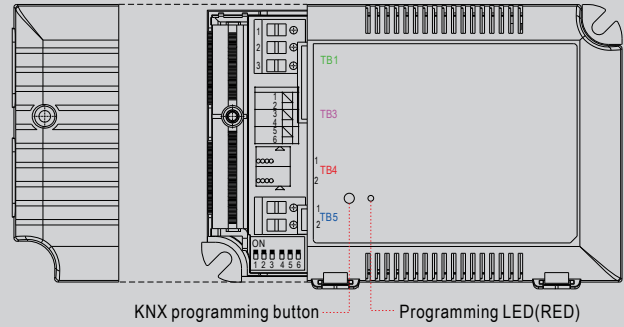
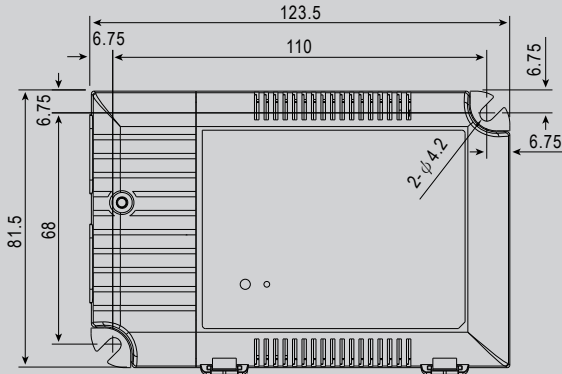
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Mechanical Specification

Case No. LCM-60B Unit:mm



Bottom View

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

Pin 1 (+FAN) Pin2 (-FAN) is the Auxiliary DC output for the optional model LCM-40KN-AUX; it can be used to drive fan.

Terminal Pin No. Assignment (TB4)

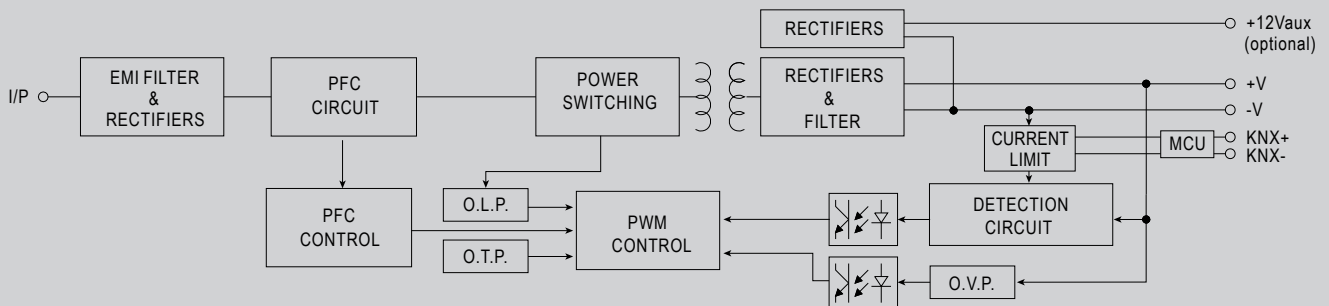
Pin No.	Assignment
1	KNX-
2	KNX+

Terminal Pin No. Assignment (TB5)

Pin No.	Assignment
1	+V
2	-V

Block Diagram

PFC fosc : 60KHz
PWM fosc : 80KHz



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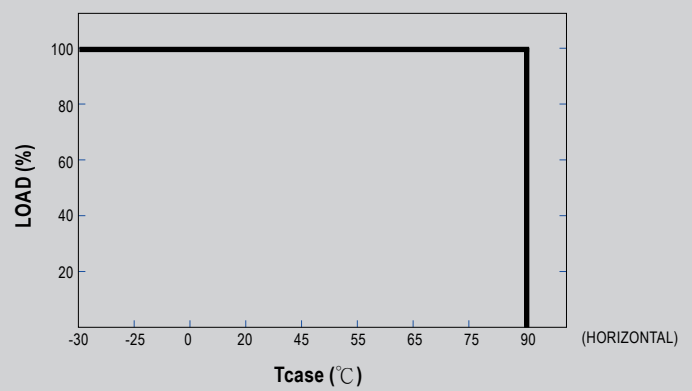
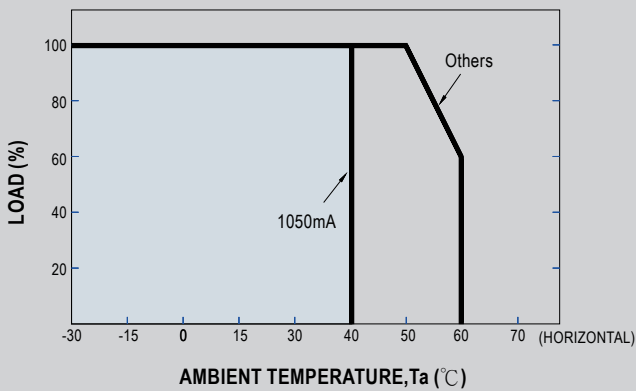


Dip Switch Table

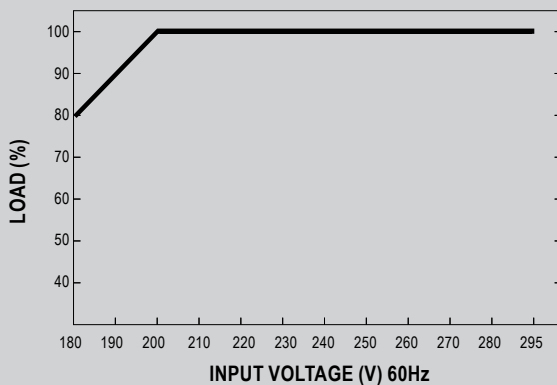
LCM-40KN is a multiple-stage constant current driver, selection of output current through DIPswitch is exhibited below.

Io	DIP S.W.	1	2	3	4	5	6
350mA		----	----	----	----	----	----
500mA		ON	----	----	----	----	----
600mA		ON	ON	----	----	----	----
700mA(factory default)		ON	ON	ON	----	----	ON
900mA		ON	ON	ON	ON	----	ON
1050mA		ON	ON	ON	ON	ON	ON

Output Load vs Temperature



Static Characteristic



De-rating is needed under low input voltage.

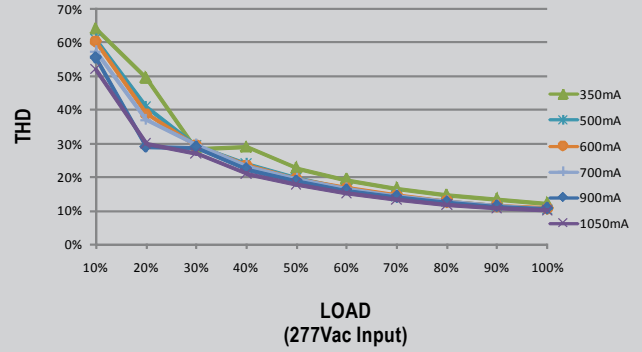
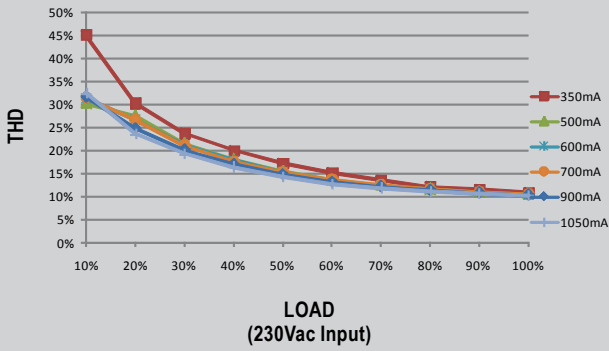
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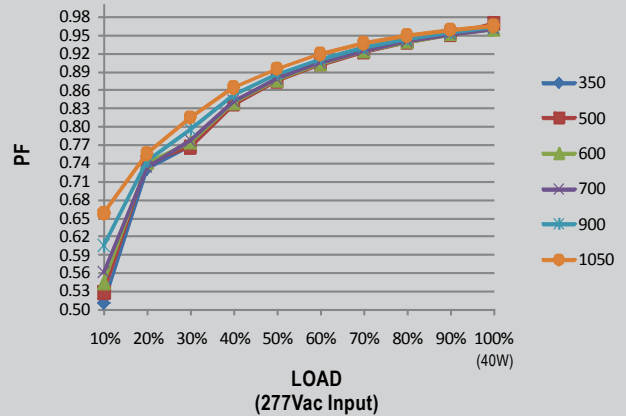
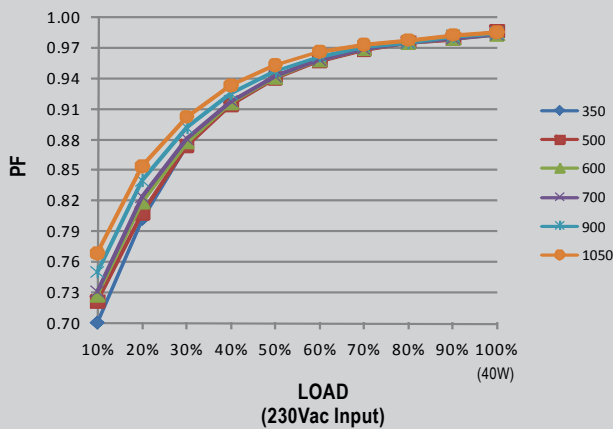
Total Harmonic Distortion (THD)

Tcase at 80°C



Power Factor (PF) Characteristic

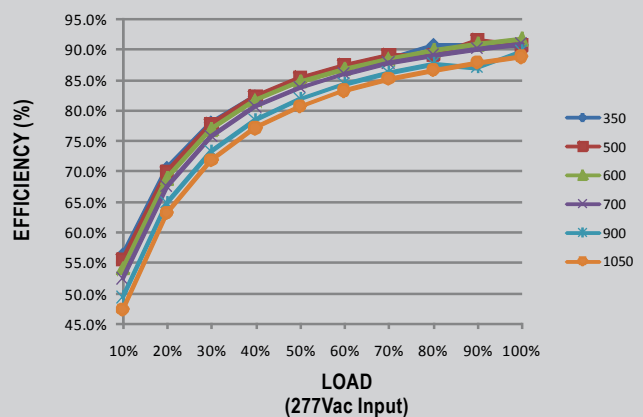
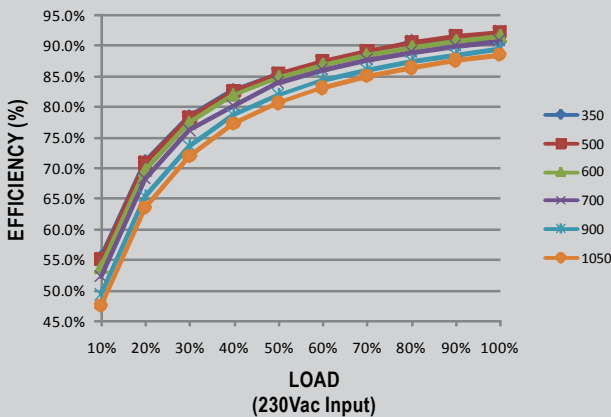
Tcase at 80°C



Efficiency vs Load

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

Tcase at 80°C



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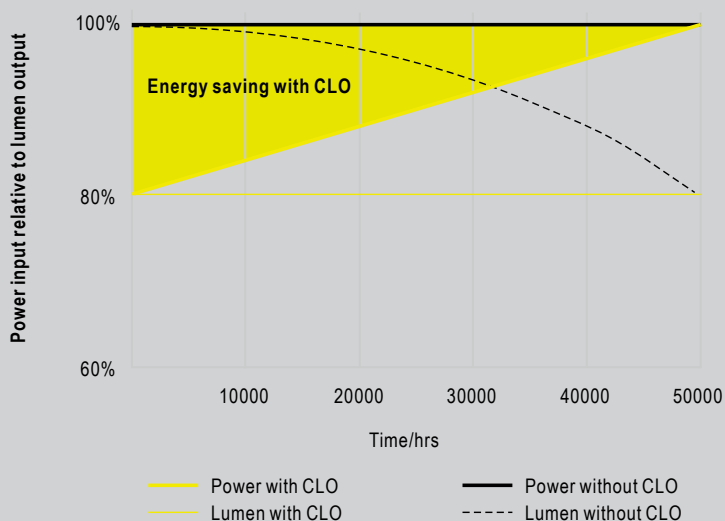
Dimming Operation

KNX interface

- Apply KNX Bus cable between KNX+ and KNX-
- The application program(database) can be downloaded via Online Catalogs from ETS

Parametrization options	Description
Switch functions	<ul style="list-style-type: none"> • Turn on brightness • Dimming speed for turn on/off • Switch telegram and status • Switch on/off delay
Dimming	<ul style="list-style-type: none"> • Dimming speed for 0~100% • Allow switch on via relative dimming • Push dimming with AC input port • Block object for push dimming
Brightness value	<ul style="list-style-type: none"> • Dimming speed for transition brightness values • Permit set switch on and off brightness via value • Brightness value and status
Fault message	<ul style="list-style-type: none"> • Lamp fault • AC/DC input monitor fault messages
Other functions	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Cyclic monitoring telegram(In operation)
8 Scenes	<ul style="list-style-type: none"> • Recall and save via KNX with 8-bit telegram
Operating hours & CLO	<ul style="list-style-type: none"> • Operating hours counter • Constant light out(5 scheduled divisions)
Power consumption feedback	<ul style="list-style-type: none"> • Power consumption report

CONSTANT LIGHT OUTPUT



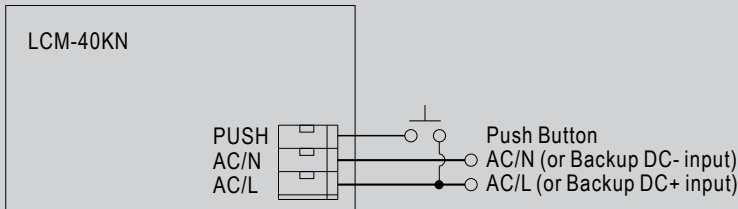
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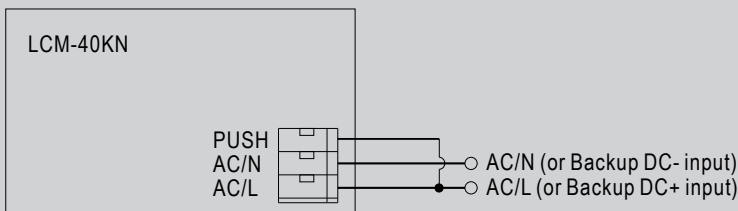
PUSH dimming or AC/DC input monitor(Primary side)

PUSH dimming



- KNX bus need to be connected when using PUSH Dimming
- The detailed function of PUSH dimming, please refer to the database.
- The maximum length of the cable between the push button and 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 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.

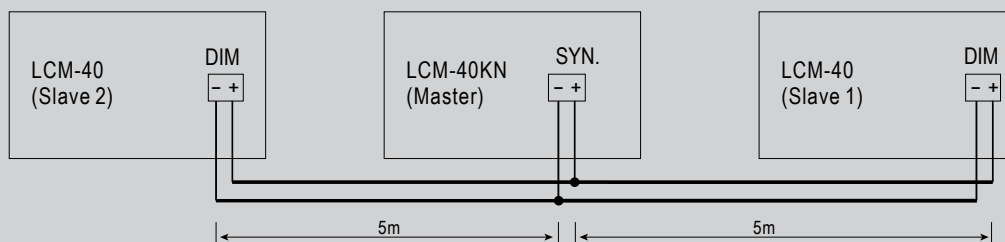
AC/DC input monitor



- KNX bus need to be connected when using AC/DC input monitor
- The detailed function of 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 (0.2~0.3mm²)



NOTE: Min. Dimming operating range depends on database setting.

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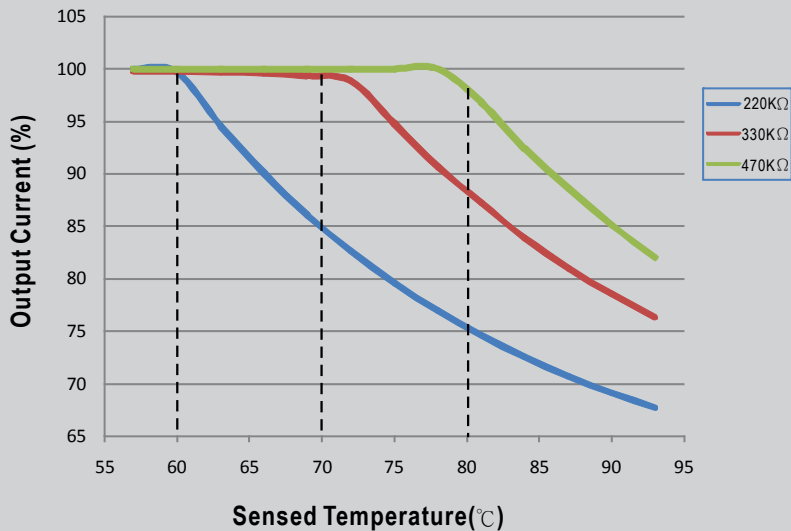
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TEMPERATURE COMPENSATION OPERATION

LCM-40KN have the 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, output current of LCM-40KN could be correspondingly changed, based on the sensed temperature, to ensure the long life of LED.

NTC derating curve



LCM-40KN can still be operated normally when the NTC resistor is not connected and the value of 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. Sunpower does not offer the NTC resistor and all the data above are measured by using THINKING TTC03 series.

2. If other brands of NTC resistor is applied, please check the temperature curve first.

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