60W Wireless Lighting Constant Current LED Driver Solution

LCM-60 IoT Series

User's Manual

Features

- Constant Current mode output with multiple levels selectable by dip switch
- Flicker free design
- Plastic housing with class II design
- Temperature compensation function by external NTC
- Functions: Bluetooth low energy mesh Synchronization up to 10units
- 3 years warranty

Applications

- LED indoor lighting
- LED office lighting
- LED panel lighting
- LED commercial lighting
- Intelligent lighting control

GTIN CODE

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

Description

LCM-60 IoT series is a 60W AC/DC constant current mode output LED driver featuring the multiple levels selectable by dip switch and integration with Bluetooth control solution.LCM-60 IoT operates from 180～295VAC and offers different current levels ranging between 500mA and 1400mA. Thanks to the high efficiency up to 91%, with the fanless design, the entire series is able to operate for -20℃ ~+90℃ case temperature under free air convection. In addition, LCM-60 IoT is designed with freely assignable input and synchronization function, so as to provide the optimal design flexibility for LED lighting system and upgrade lighting to be an intelligent lighting system.

Model Encoding

LCM - 60 BLE AUX

- AUX: Auxiliary power output(option)
- BLE: Built-in wireless module brand and solution
- 60: Output wattage
- LCM: Series name

IoT wireless Module brand and solution

Brand	Solution	Wireless standard	Note
Casambi	BLE	Bluetooth low energy mesh 2.4GHz protocol	By request
Tuya	TY1	Bluetooth low energy mesh 2.4GHz protocol	By request
Silvair	SVA	Bluetooth low energy mesh 2.4GHz protocol	By request

SPECIFICATION

MODEL		LCM-60 □					
OUTPUT	CURRENT LEVEL	Current level selectable via DIP switch, please refer to"DIP SWITCH TABLE" section					
		500mA	600mA	700mA(default)	900mA	1050mA	1400mA
	RATED POWER	60.3W					
	DC VOLTAGE RANGE	2 ~ 90V	2 ~ 90V	2 ~ 86V	2 ~ 67V	2 ~ 57V	2 ~ 42V
	OPEN CIRCUIT VOLTAGE (max.)	95V			73V		
	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(option)					
INPUT	VOLTAGE RANGE Note.2	180 ~ 295VAC 254 ~ 392VDC (Please refer to "STATIC CHARACTERISTIC" section)					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF≧0.975/230VAC, PF≧0.96/277VAC@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	91%					
	AC CURRENT (Typ.)	0.32A/230VAC 0.27A/277VAC					
	INRUSH CURRENT (Typ.)	COLD START 20A(t_{width}=270μs measured at 50% I_{peak}) at 230VAC; Per NEMA 410					
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	25 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC					
	LEAKAGE CURRENT	<0.5mA / 240VAC					
	STANDBY POWER CONSUMPTION Note.8	<1W					
PROTECTION	SHORT CIRCUIT	Constant current limiting, recovers automatically after fault condition is removed					
	OVER VOLTAGE	105 ~ 125V					
		Shutdown o/p voltage, re-power on to recover					
	OVER TEMPERATURE	Shutdown o/p voltage,re-power on to recover					
FUNCTION	WIRELESS PROTOCOL	Bluetooth low energy 2.4GHz protocol					
	DIMMING RANGE Note.9	0~100% Minimum dimming level:6%,dim to off					
	SYNCHRONIZATION	Please refer to "SYNCHRONIZATION OPERATION" section					
	TEMP. COMPENSATION	By external NTC, please refer to "TEMPERATURE COMPENSATION OPERATION"section					
ENVIRONMENT	WORKING TEMP.	Tcase=-20 ~ +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, CSA C22.2 No.250.13-12, ENEC BS EN/EN61347-1, BS EN/EN61347-2-13, BS EN/EN62384 independent, GB19510.14,GB19510.1,BIS IS15885, 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 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	2453.7K hrs min. Telcordia SR-332 (Bellcore) ; 238.3K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	123.5*81.5*23mm (L*W*H)					
	PACKING	0.24Kg ; 54pcs/15Kg/1.12CUFT					

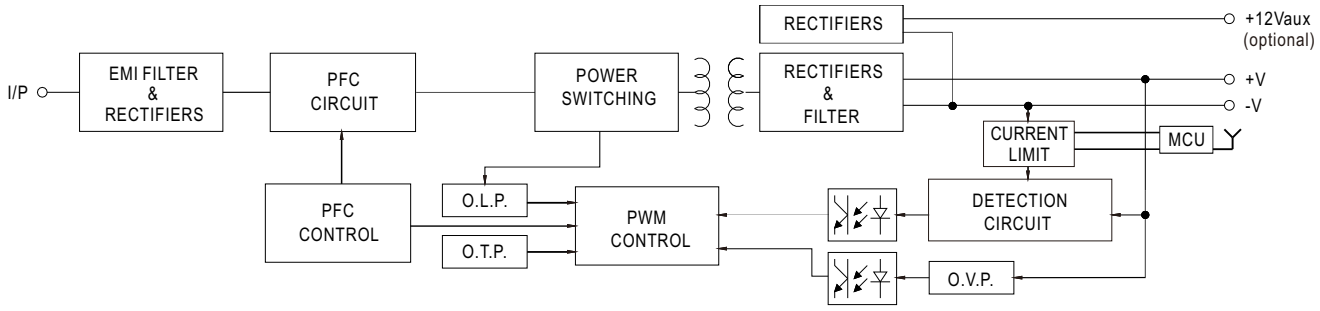
NOTE

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 900mA/67V output set by DIP switch.
5. Current ripple is measured 60%~100% of maximum voltage under rated power delivery.
6. 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)
7. 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).
8. The standby power consumption does not need to meet ErP due to the integrated wireless transmitter which is working all the time.
9. The dimming memory function needs at least 5 seconds to complete.
10. The matching mode of TY1 type is on-off-on-off-on by AC or DC power
11. 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

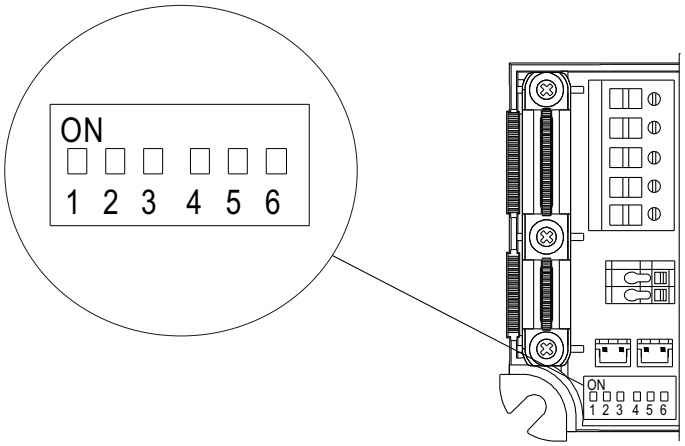
PFC fosc : 60KHz
PWM fosc : 80KHz



■ DIP SWITCH TABLE

LCM-60 IoT series is a multiple-stage constant current driver, selection of output current through DIP switch is exhibited below.

Io \ DIP S.W.	1	2	3	4	5	6
500mA	----	----	----	----	----	----
600mA	ON	----	----	----	----	----
700mA(factory default)	ON	ON	----	----	----	----
900mA	ON	ON	ON	----	----	ON
1050mA	ON	ON	ON	ON	----	ON
1400mA	ON	ON	ON	ON	ON	ON



NOTE: For more output current is selectable, please contact MEANWELL for details

■ DIMMING OPERATION

※Bluetooth control

- To be used through APP available on Apple Store and Google Play Store for iOS and Android.
  Search: BLE with Casambi/TY1 with Smart Life/SVA with Silvair
  Example:

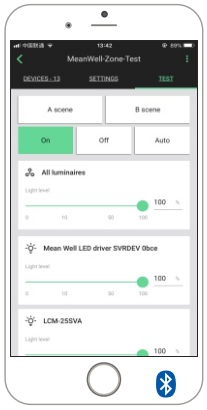
Download on the App Store

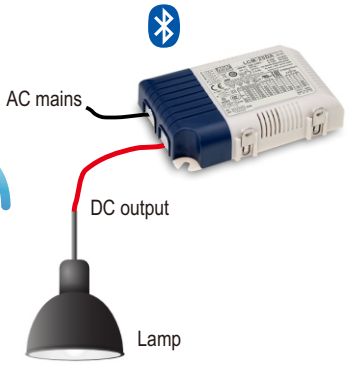
ANDROID APP ON Google play

The APP for BLE type is “Casambi”

The APP for TY1 type is “Smart Life”

The APP for SVA type is “Silvair”





■OFFICIAL WEBSITE AND ECOSYSTEM INFORMATION

CASAMBI

The real time Bluetooth IC temperature is shown in the APP. In case it reaches above 72 ºC (equivalent to Tc 85ºC), the driver will be turn off to provide a protection. In case the units is cooled down, it can be manually turn ON and back to normal operation again.

NOTE: 1.This software temperature protection is an extra independent function from driver its own hardware over temperature protection(when it is enabled, it needs re-AC power on to recover).

2.In general the software temperature protection is triggered before the hardware one when in over temperature.

3.Website: https://www.casambi.com

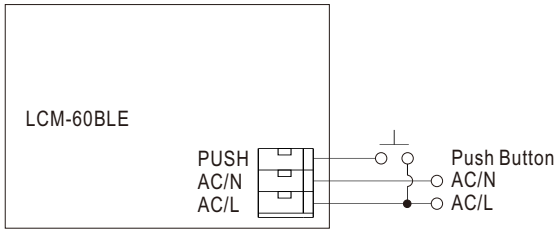
Powered by tuya Intelligence Inside

NOTE: 1.Website: https://www.tuya.com

SILVAIR

NOTE: 1.Website: https://www.silvair.com

■ PUSH DIMMING FUNCTION

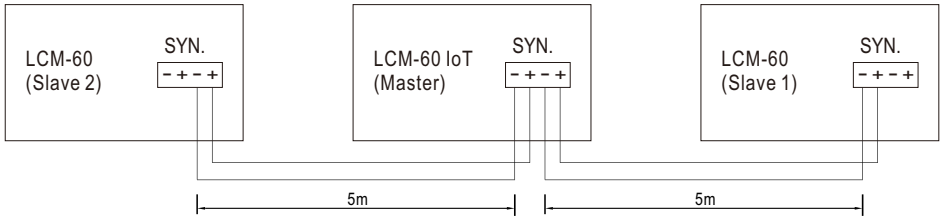


※Freely assignable (push) input(Push dimming function only for BLE)

- The LCM BLE series also has one freely assignable AC mains (push) input. As with a CASAMBI sensor module, control pulses can be defined here (e.g. “controls a luminaire”; “controls an element”; “controls a group”; “controls scenes”; “controls all luminaires”; “change scenes”). See the reference connection figure in the above.

■ SYNCHRONIZATION OPERATION

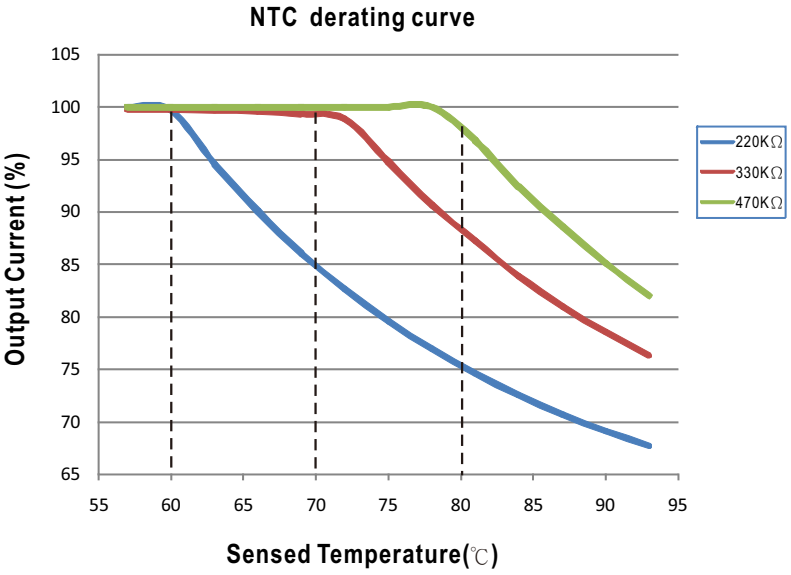
- Synchronization up to 10 drivers (1 master + 9 slaves)
- Dimming operating range : 10%~100%
- Sync cable length : < 5m
- Sync cable type : Flat cable
- Sync cable cross section area : 22 – 24 AWG (0.2~0.3mm^2)



NOTE: 1. Please make sure all units are set to 100% dimming setting (factory default) before synchronizing.
2. Min. Dimming operating range depends on dimmer setting.

■ TEMPERATURE COMPENSATION OPERATION

LCM-60 IoT series have the built-in temperature compensation function ; by connecting a temperature sensor (NTC resistor) between the *+NTC / -NTC* terminal of LCM-60 IoT series and the detecting point on the lighting system or the surrounding environment, output current of LCM-60 IoT could be correspondingly changed, based on the sensed temperature, to ensure the long life of LED.



◎ LCM-60 IoT series 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.

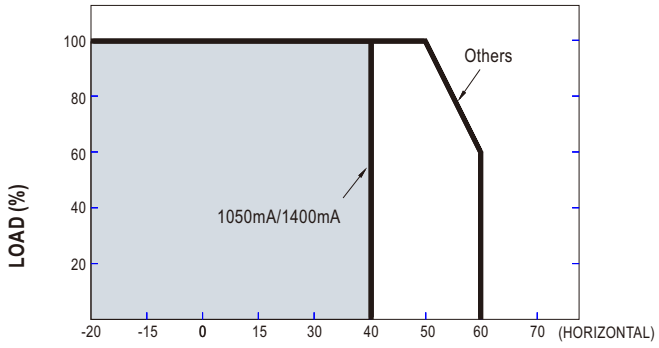
◎ NTC reference:

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

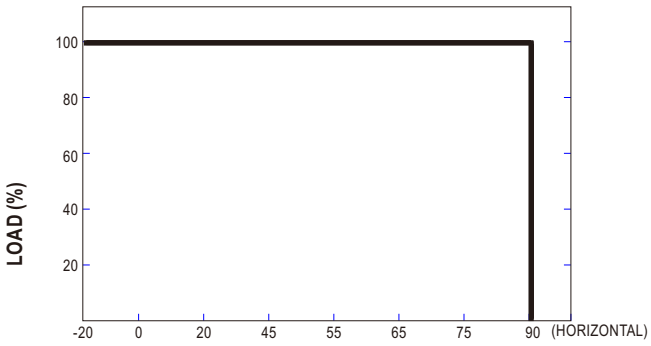
Notes: 1. MEAN WELL does not offer the NTC resistor and all the data above are measured by using THINKING TTC03 series.
2. If other brands of NTC resistor is applied,please check the temperature curve first.

◎ Dimming and synchronization function of the driver will be invalid when the "temperature compensation" function is in use.

■ OUTPUT LOAD vs TEMPERATURE

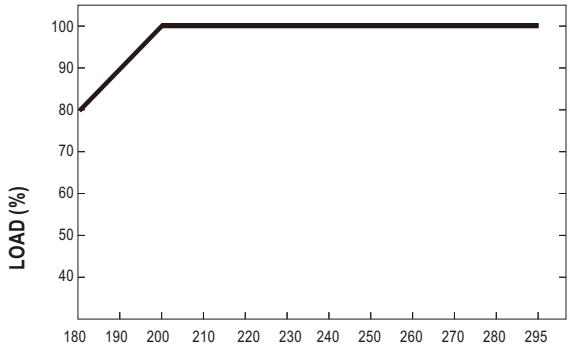


AMBIENT TEMPERATURE,Ta (℃)



Tcase (℃)

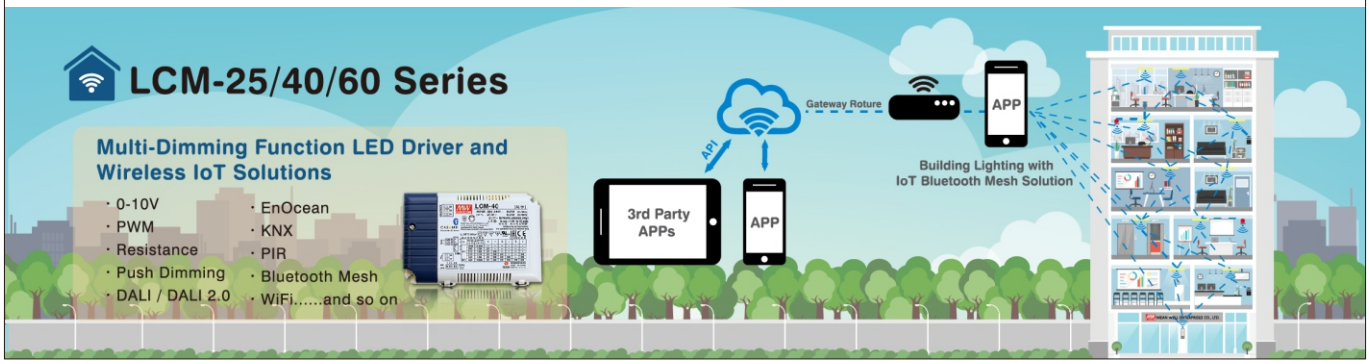
■ STATIC CHARACTERISTIC



INPUT VOLTAGE (V) 60Hz

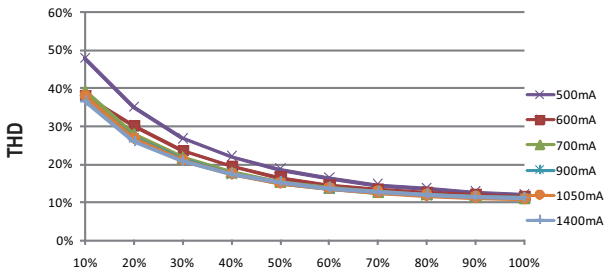
※De-rating is needed under low input voltage.

■ Bluetooth mesh LED driver for intelligent lighting Application

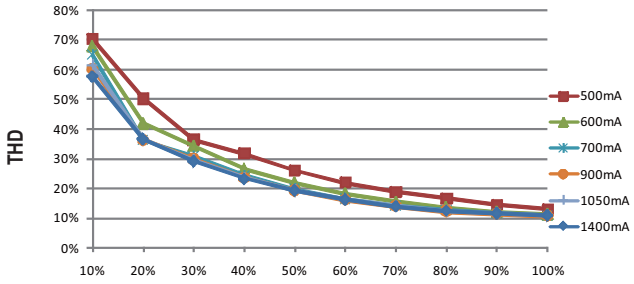


■ TOTAL HARMONIC DISTORTION (THD)

※ Tcase at 80℃



LOAD
(230Vac Input)



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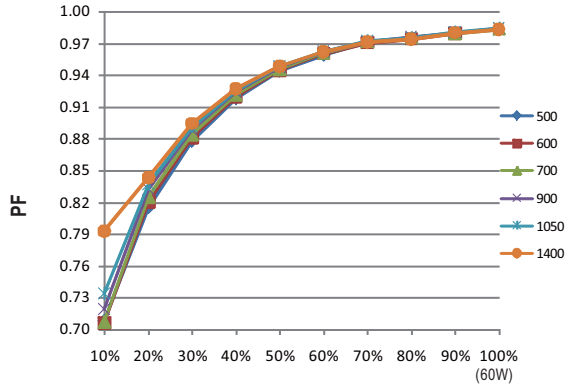
(277Vac Input)

■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 80℃



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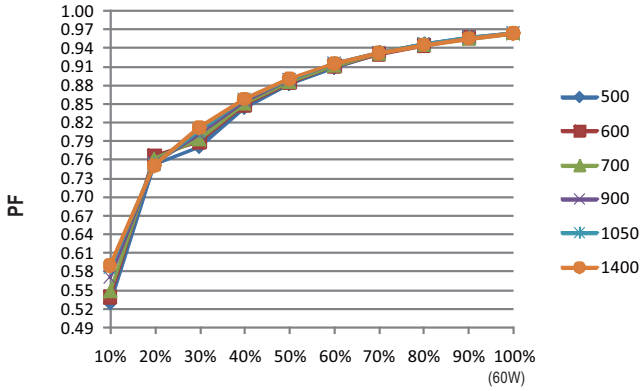
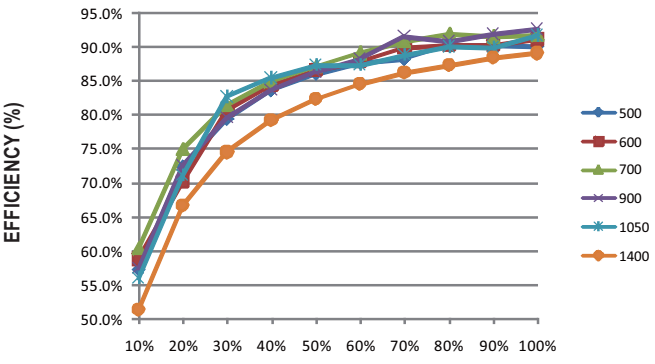


LOAD
(277Vac Input)

■ EFFICIENCY vs LOAD

LCM-60 IoT series possess superior working efficiency that up to 91% can be reached in field applications.

※ Tcase at 80℃



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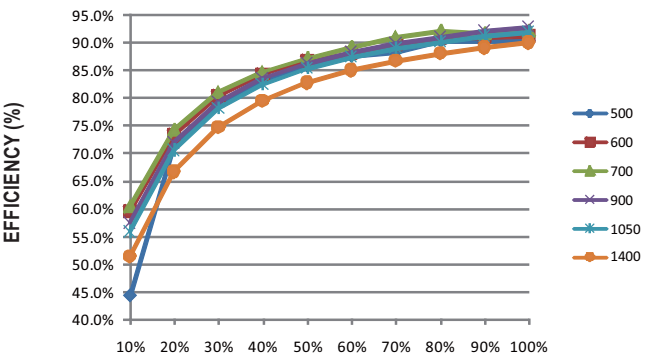
(230Vac Input)



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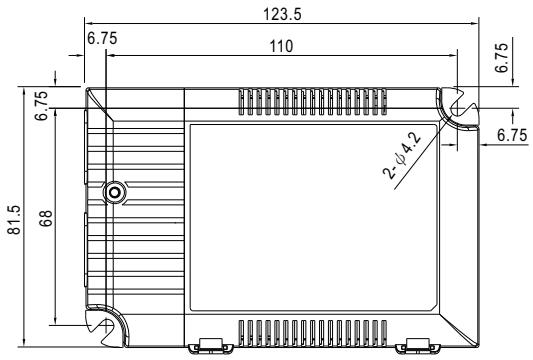
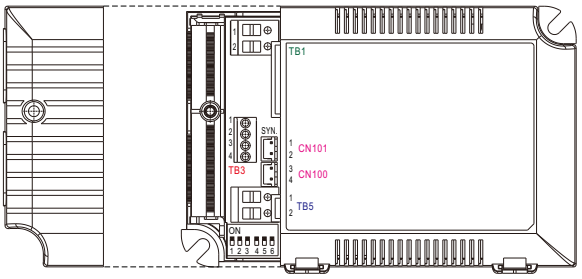
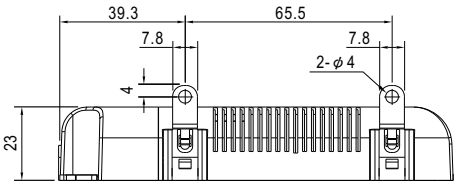
(277Vac Input)

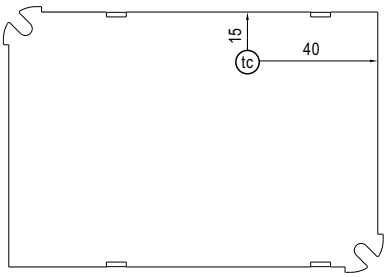
■ MECHANICAL SPECIFICATION

Case No.LCM-60A Unit:mm Tolerance:±1









Bottom View

• tc : Max. Case Temperature < 90℃

※Terminal Pin No. Assignment(TB1)(Input)

Pin No.	Assignment
1	AC/L
2	AC/N
3	PUSH(BLE only)

※Terminal Pin No. Assignment(TB3)

Pin No.	Assignment	Pin No.	Assignment
1	+AUX(optional)	3	+NTC
2	-AUX(optional)	4	-NTC

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

※Terminal Pin No. Assignment(TB5)(Output)

Pin No.	Assignment
1	+V
2	-V

※SYN. Connector(CN101/CN100):

Pin No.	Assignment	Mating Housing	Terminal
1,3	+	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2,4	–		

■ Installation Manual

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