40W Constant Power Mode With Tunable White LED Driver LCM-40TW series

User's Manual

Video

SELV

Note.10

Features

- Available for DALI device type 6(DT6) and device type 8(DT8) Tunable White control
- Constant power mode output with 2 channels
- Plastic housing with class II design
- Built-in active PFC function
- Standby power consumption <0.5W
- Minimum dimming level 0.2%
- Cooling by free air convection
- 5 years warranty

Applications

- Tunable White Lighting
- Downlight
- Panel Light
- Decorative Light
- Industrial lighting
- DALI Building automation

Description

LCM-40TW Series is a 40W constant power output LED driver with two channels output for Tunable white function. It can operate from 180~277V AC and output current ranging between 500 mA to 1050 mA selectable by dip switch. Thanks to high efficiency up to 87%, it is able to operate for -30℃~85℃ case temperature under free air convection. LCM-40TW is designed based on DALI-2 DT8 Tunable white function and is also usable as two independent output channels with DT6 applications. LCM-40TW can be adjusted for light intensity and color temperature by a push button as a simple way dimming, so it provides the optimal design flexibility for LED Lighting luminaires.

Model Encoding

LCM - 40 TW

- TW → Function options(TW: DALI-2 Tunable White)
- 40 → Rated wattage
- LCM → Series name

MEAN WELL

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SPECIFICATION

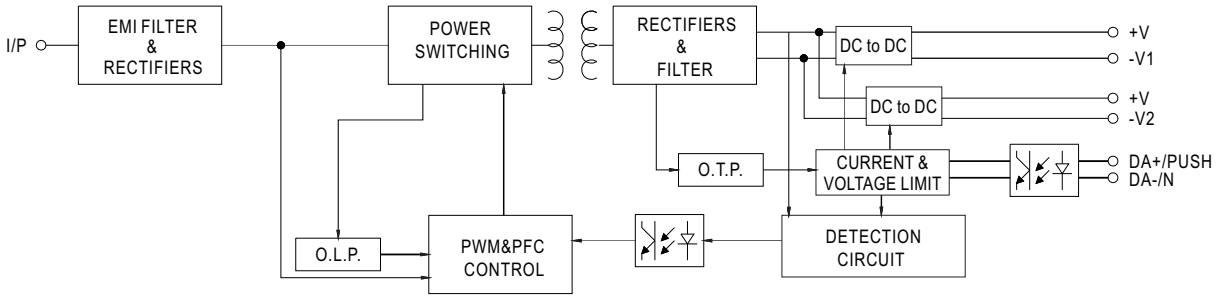
MODEL		LCM-40TW	
OUTPUT	OUTPUT CHANNEL	CH1	CH2
	DC VOLTAGE RANGE	20~50V	20~50V
	RATED POWER	40W Max. total	
	NO LOAD VOLTAGE	53V	53V
	CURRENT ADJ. RANGE (BY DIP SWITCH)	500~1050mA	500~1050mA
	CURRENT RIPPLE Note5	<2%	
	DIMMING RANGE	0~100%	
	START UP TIME Note9	500ms/230VAC	
INPUT	VOLTAGE RANGE	180~277VAC 260~390VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR	PF≥0.98/230VAC,PF≥0.95/277VAC@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.) Note4	87%	
	AC CURRENT	0.23A/230VAC	
	INRUSH CURRENT	COLD START 20A(twidth=310μs measured at 50% Ipeak) at 230VAC; Per NEMA 410	
	LEAKAGE CURRENT	<0.75mA / 277VAC	
	STANDBY POWER CONSUMPTION Note6	standby power consumption<0.5W (Dimming off)	
PROTECTION	OVERLOAD	105~135% rated output power	
		Protection type: Hiccup mode, recovers automatically after fault condition is removed.	
	SHORT CIRCUIT	Constant current limiting, recovers automatically after fault condition is removed	
	OVER TEMPERATURE	Stage 1: Derating to 70% loading; stage2: Shut down.Recovers automatically after fault condition is removed	
ENVIRONMENT	WORKING TEMP.	Tcase=-30~85℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)	
	MAX. CASE TEMP.	Tcase=85℃	
	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 EN61347-1, EN61347-2-13, EN62384 independent, GB19510.14,GB19510.1, EAC TP TC 004 approved	
	DALI STANDARDS	Comply with IEC62386-101, 102, 207(DT6),209(DT8),251	
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC	
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH	
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C(@load 50%) ; 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	
OTHERS	MTBF	2111.7K hrs min. Telcordia SR-332 (Bellcore) 177.4Khrs 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 800mA/50V 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.
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. Based on IEC 62386-101/102 DALI power on timing and interruption regulations, the set up time needs to test with a DALI controller which can support for DALI power on function, otherwise the start up time will be higher than 0.5 second.
10. For more information, please contact with MEAN WELL sales.

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ BLOCK DIAGRAM

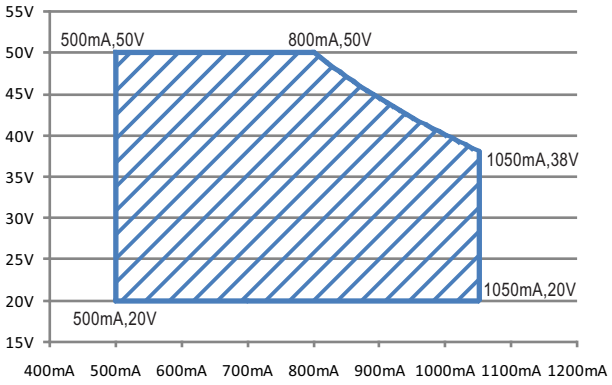


■ DRIVING METHODS OF LED MODULE

※ I-V Operating Area

◎ **LCM-40TW**

For 40W application



■ DIP SWITCH TABLE

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

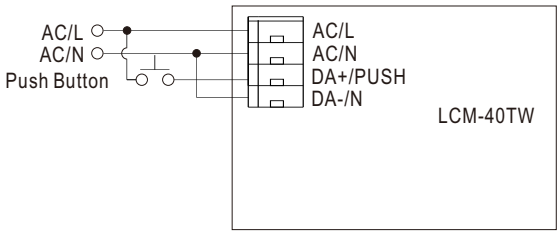
Io \ DIP S.W	1	2	3
500mA	----	ON	ON
	ON	ON	ON
600mA	----	----	ON
	ON	----	ON
700mA(factory default)	ON	ON	----
800mA	----	ON	----
900mA	ON	----	----
1050mA	----	----	----

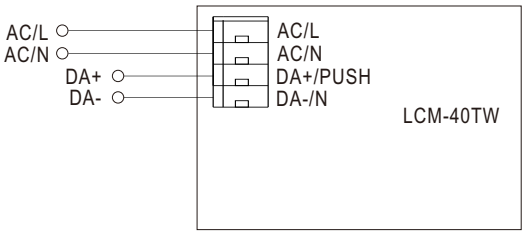
Note: For more current setting,please contact MW's sales.

Status \ DIP S.W	4	5	Activatied Channel
Single-address DT6	----	ON	CH1
Dual-address DT6	ON	ON	CH1,CH2
Single-address DT8 (factory default)	----	----	CH1,CH2
	ON	----	

■ DIMMING OPERATION

※ Output 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.
- The additive 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.

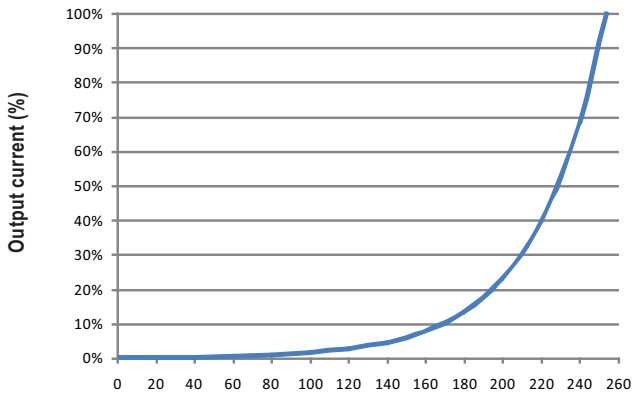
Action	Action duration
Short Push	0.1~1s
Double Click	Click twice in 1.5s
Long Push	1.5~10s

Function

Status	Output	Push button function
DT6 Single Address	CH1	Short Push : ON/OFF Double Click : go to maximum. Long Push: Dim up/down. - stop at max./min. level - with next push, direction change (up/down) - dim up possible even if when unit is in standby mode (dim off mode)
DT6 Dual Address	CH1,CH2	Short Push: ON/OFF Double Click : go to maximum. Long Push : Dim up+CCT cooler/Dim down+CCT warmer - dim up stop at maximum; dim down stop at min dim (not dim off) - with next push, up or down direction will change - dim up possible even if when unit is in standby mode (dim off mode)
DT8	CH1(C) , CH2(W)	Short Push : ON/OFF Double Click : Switch between Dim control or CCT control mode Long Push : Dim up/down or CCT control - stop at max./min. level - with next push, direction change (up/down, warm/cold) - dim up possible even if when unit is in standby mode (dim off mode)

※DALI interface(primary side; for DA2-Type)

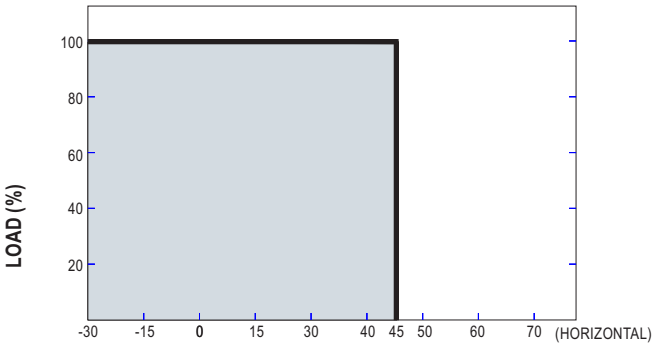
- Apply DALI signal between DA+ and DA-
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 0.2%.



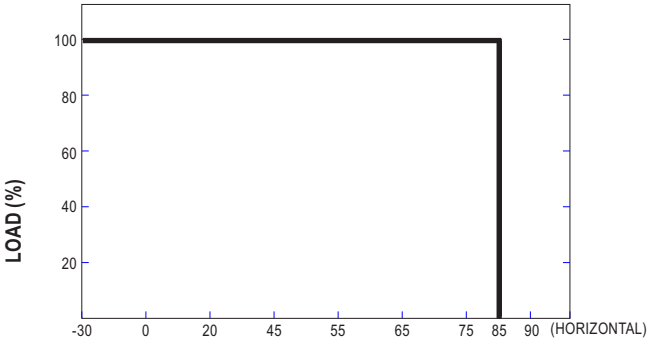
DALI Dimming curve

Application	Output channels	Output connections schematic diagram
Two independent output control(DT6)	Single or dual address (CH1 only in single address mode)	output: +V, +V, CH1 -V1, CH2 -V2
Tunable white control(DT8)	Single address	output: +V, +V, CH1 -V1 (C.W), CH2 -V2 (W.W)

■ OUTPUT LOAD vs TEMPERATURE

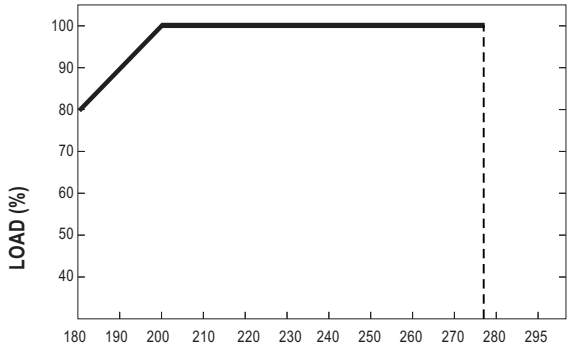


AMBIENT TEMPERATURE,Ta (℃)



Tcase (℃)

■ STATIC CHARACTERISTIC

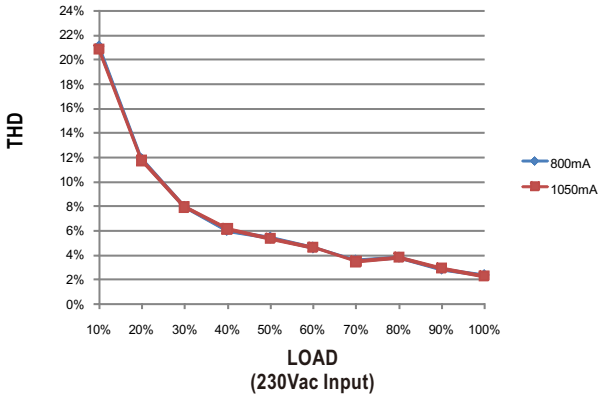


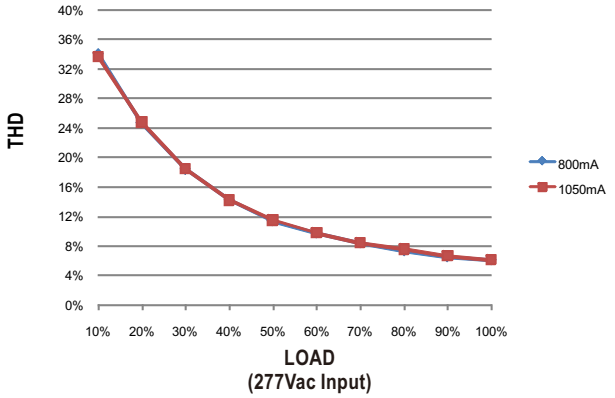
INPUT VOLTAGE (V) 60Hz

※De-rating is needed under low input voltage.

■ TOTAL HARMONIC DISTORTION (THD)

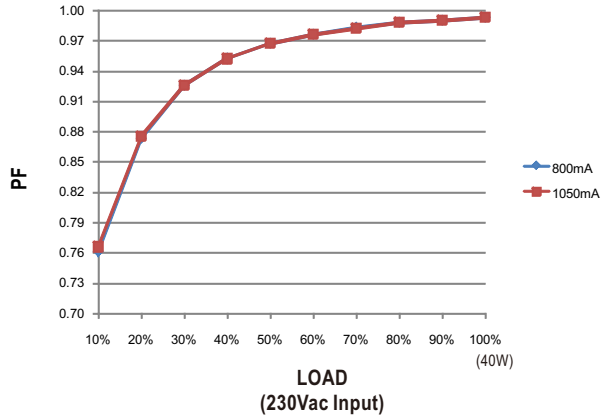
※ Tcase at 80℃

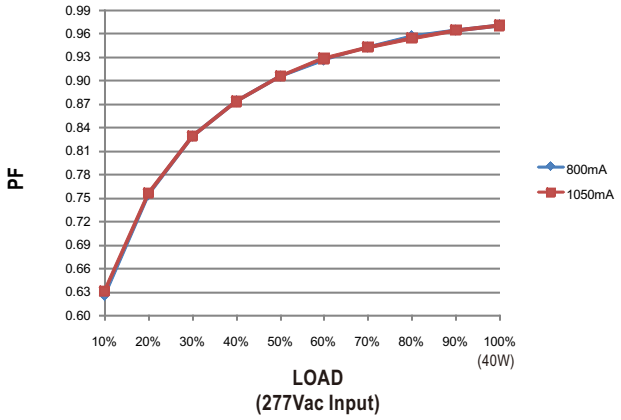




■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 80℃

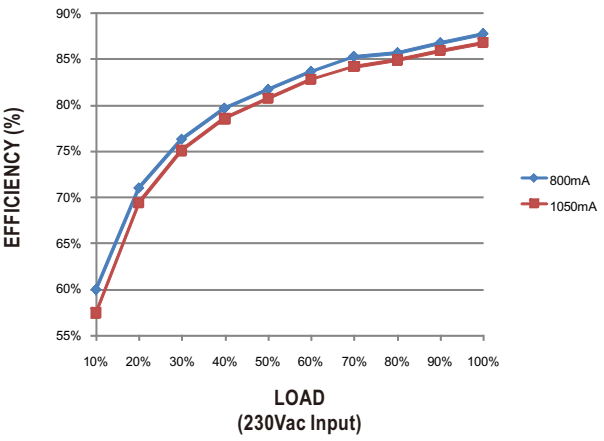


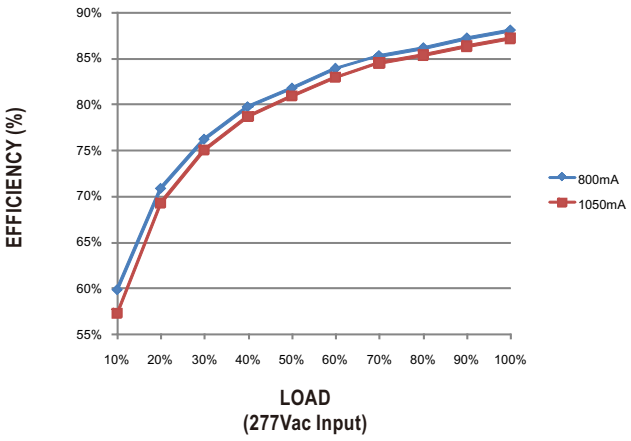


■ EFFICIENCY vs LOAD

LCM-40TW series possess superior working efficiency that up to 87% can be reached in field applications.

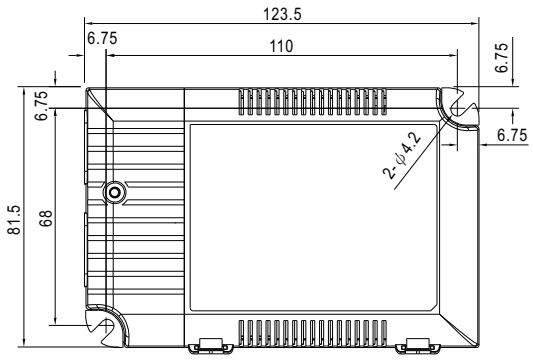
※ Tcase at 80℃

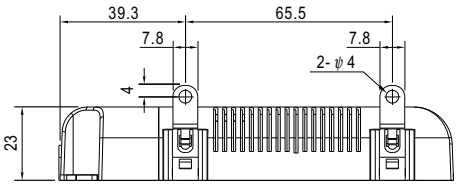


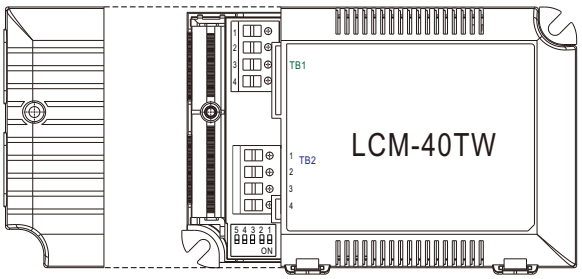


■ MECHANICAL SPECIFICATION

Case No.LCM-60A Unit:mm





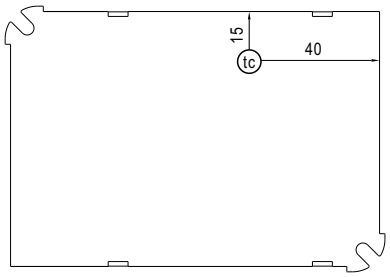


※Terminal Pin No. Assignment(TB1)

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

※Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	+V
2	+V
3	-V1
4	-V2



Bottom View

• ⓣc : Max. Case Temperature

■ Installation Manual

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