25W Multiple-Stage Constant Current Mode LED Driver LCM-25KN series

User's Manual

Video

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 10units
- 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
- Industrial lighting

GTIN CODE

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

Description

LCM-25KN series is a 25W AC/DC constant current mode output LED driver featuring the multiple levels selectable by dip switch and the KNX interface to avoid using the complicated KNX-DALI gateway. LCM-25KN operates from 180～277VAC and offers different current levels ranging between 350mA and 1050mA. Thanks to the efficiency up to 85%, with the fanless design, the entire series is able to operate for -30℃~+85℃ case temperature under free air convection. In addition, LCM-25KN is equipped with push dimming and synchronization so as to provide the optimal design flexibility for LED lighting system.

Model Encoding

LCM - 25KN

- Built-in KNX interface
- Output wattage
- Series name

25W Multiple-Stage Constant Current Mode LED Driver LCM-25KN series

SPECIFICATION

MODEL		LCM-25KN					
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	18.9W	25.2W				
	DC VOLTAGE RANGE	6 ~ 54V	6 ~ 50V	6 ~ 42V	6 ~ 36V	6 ~ 28V	6 ~ 24V
	OPEN CIRCUIT VOLTAGE (max.)	59V			41V		
	CURRENT RIPPLE	5.0% max. @rated current					
	CURRENT TOLERANCE	±5%					
	SETUP TIME Note.3	500ms / 230VAC					
INPUT	VOLTAGE RANGE Note.2	180 ~ 277VAC 220 ~ 380VDC (Please refer to "STATIC CHARACTERISTIC" section)					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF≧0.94/230VAC, PF≧0.91/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)					
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≧50%/230VAC; @load≧75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)					
	EFFICIENCY (Typ.) Note.4	85%					
	AC CURRENT (Typ.)	0.17A/230VAC 0.15A/277VAC					
	INRUSH CURRENT (Typ.)	COLD START 20A(t_{width}=260μs measured at 50% I_{peak}) at 230VAC; Per NEMA 410					
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	26 units (circuit breaker of type B) / 44 units (circuit breaker of type C) at 230VAC					
	LEAKAGE CURRENT	<0.5mA / 240VAC					
	STANDBY POWER CONSUMPTION Note.5	<0.5W					
PROTECTION	SHORT CIRCUIT	Constant current limiting, recovers automatically after fault condition is removed					
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down					
FUNCTION	DIMMING	Please refer to "DIMMING OPERATION" section					
	SYNCHRONIZATION	Please refer to "SYNCHRONIZATION OPERATION" section					
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					
SAFETY & EMC	SAFETY STANDARDS	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(Part2/Sec13), EAC TP TC 004 approved					
	KNX STANDARDS	certification					
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC ; O/P-KN±:500VDC					
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms / 500VDC / 25℃/ 70% RH					
	EMC EMISSION Note.6	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C(@load≧50%) ; 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	1994.5K hrs min. Telcordia SR-332 (Bellcore) ; 201.1K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	105*68*23mm (L*W*H)					
	PACKING	0.173Kg ; 72pcs/13.5Kg/1.04CUFT					

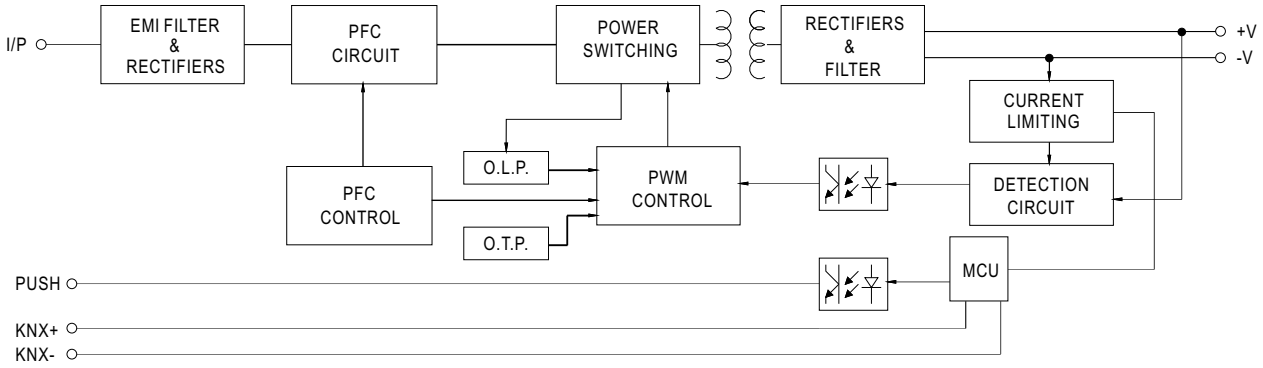
NOTE

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/50V output set by DIP switch.
5. Standby power consumption is measured at 230VAC.
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. 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

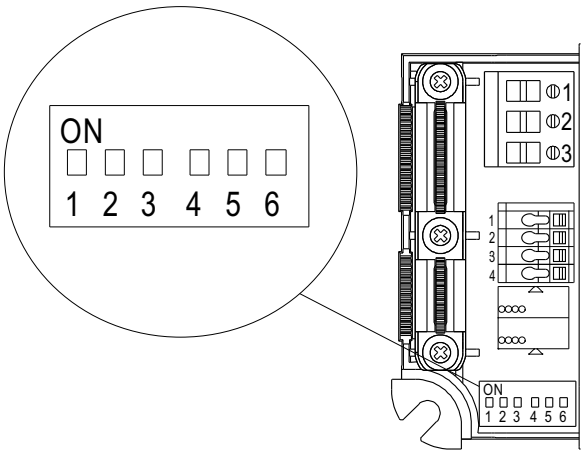
PFC fosc : 45KHz
PWM fosc : 70KHz



■ DIP SWITCH TABLE

LCM-25KN 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	Max.LED voltage
350mA	----	----	----	----	----	----	54V
500mA	ON	----	----	----	----	----	50V
600mA	ON	ON	----	----	----	----	42V
700mA(factory default)	ON	ON	ON	----	----	ON	36V
900mA	ON	ON	ON	ON	----	ON	28V
1050mA	ON	ON	ON	ON	ON	ON	24V



More current options through DIP switch are listed below.

Io \ DIP S.W.	1	2	3	4	5	6	Max.LED voltage
450mA	----	ON	----	----	----	----	54V
550mA	----	----	----	ON	----	----	46V
800mA	ON	ON	----	ON	----	----	31V

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

■ DIMMING OPERATION

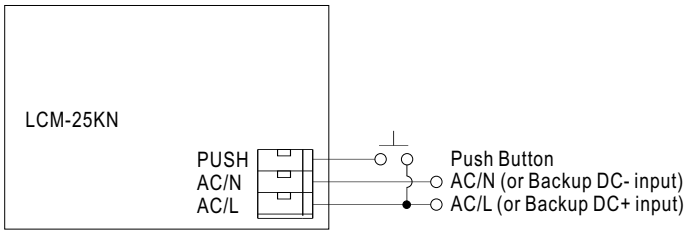
※ KNX interface

- 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 inut 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

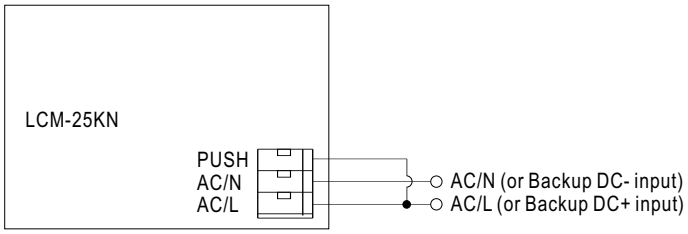
※PUSH dimming or AC/DC input monitor(Primary side)

◎ **PUSH dimming**



- The detail function of PUSH dimming, please refer to the database.
- 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.
- 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.

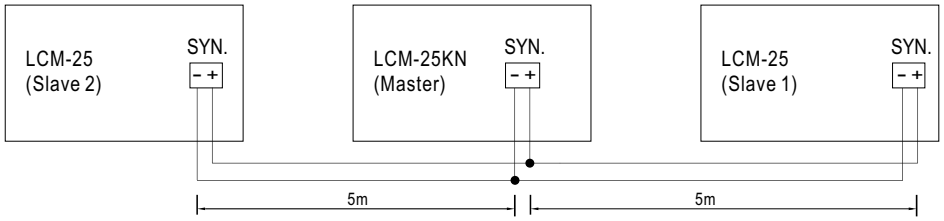
◎ **AC/DC input monitor**



- KNX Bus need to connected when using AC/DC input monitor
- The detail function of AC/DC input monitor, please refer to the database.

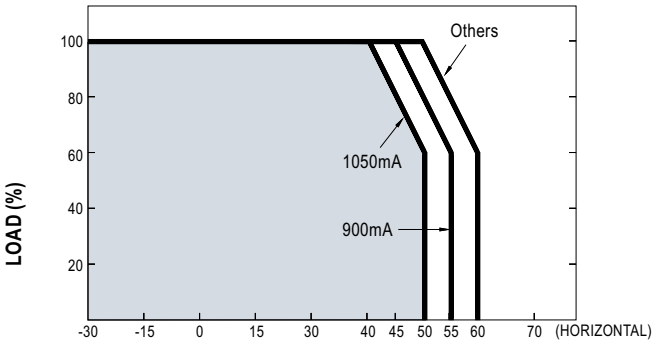
■ SYNCHRONIZATION OPERATION

- 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)

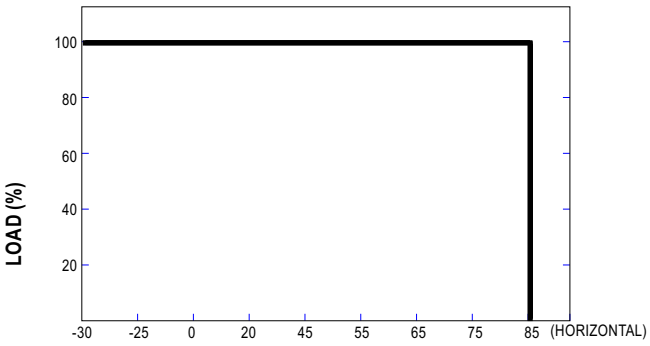


NOTE: 1. Please make sure all units are set to 100% dimming setting (factory default) before synchronizing.
2. Min. Dimming operating range depends on database setting.

■ OUTPUT LOAD vs TEMPERATURE

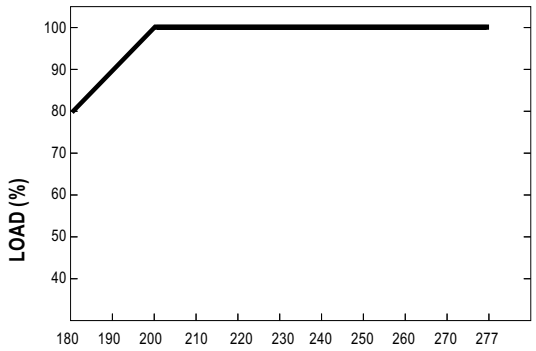


AMBIENT TEMPERATURE,Ta (℃)



Tcase (℃)

■ STATIC CHARACTERISTIC

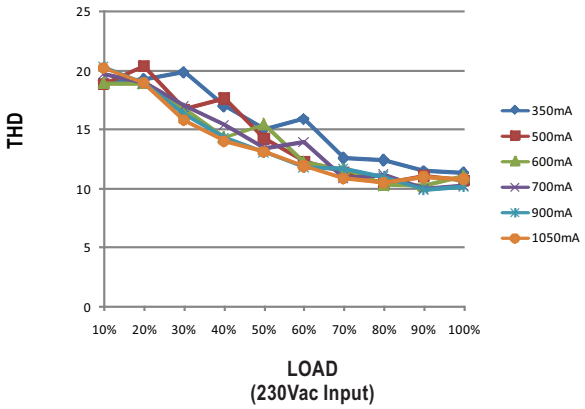


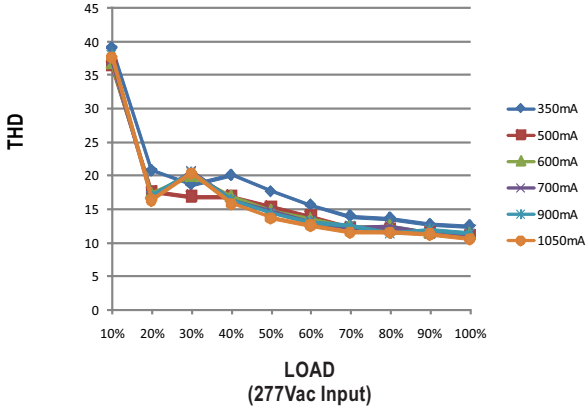
INPUT VOLTAGE (V) 60Hz

※De-rating is needed under low input voltage.

■ TOTAL HARMONIC DISTORTION (THD)

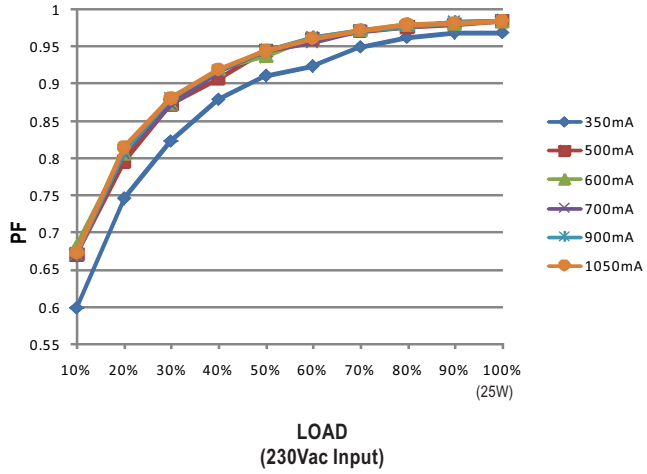
※ Tcase at 75℃

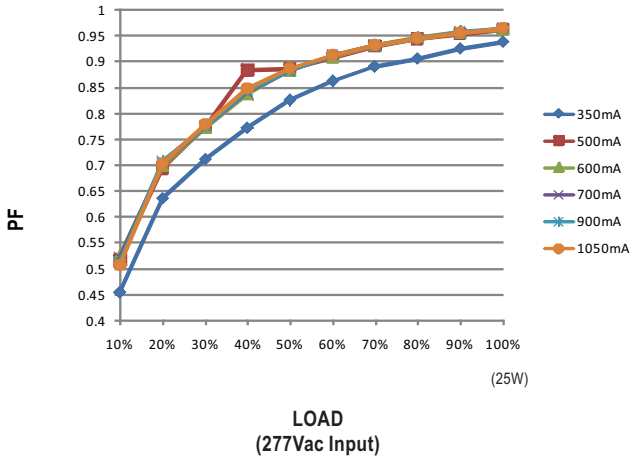




■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 75℃

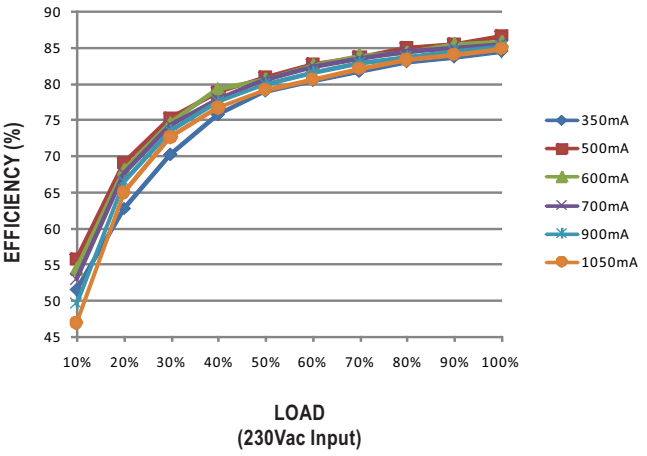


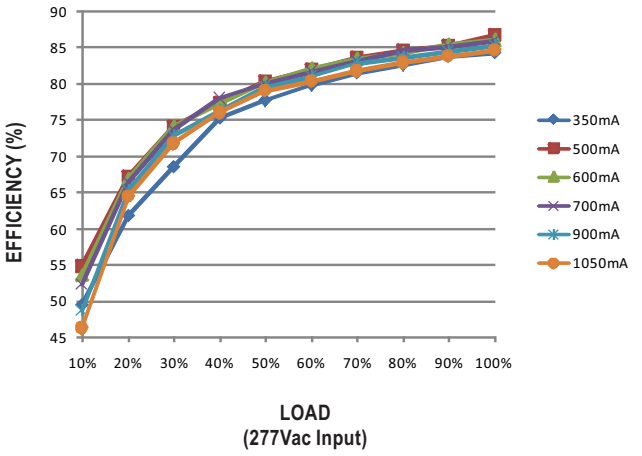


■ EFFICIENCY vs LOAD

LCM-25KN series possess superior working efficiency that up to 86% can be reached in field applications.

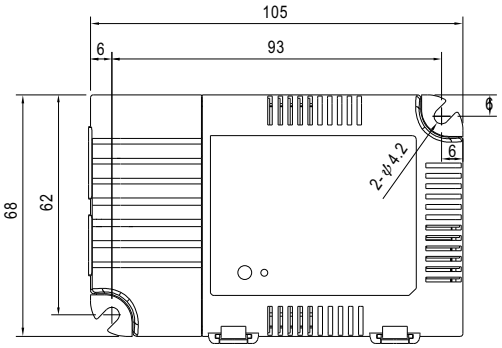
※ Tcase at 75℃

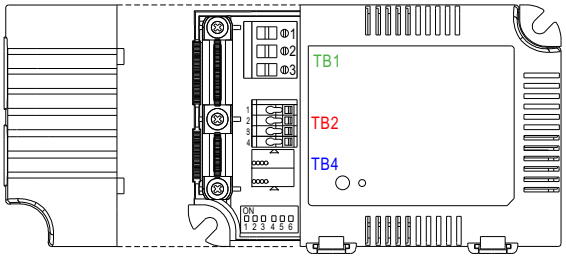


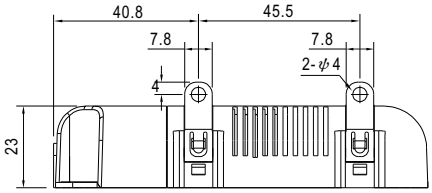


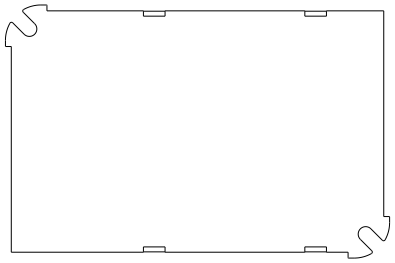
■ MECHANICAL SPECIFICATION

Case No.LCM-25 Unit:mm Tolerance:±1









Bottom View

※Terminal Pin No. Assignment(TB1)

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

※Terminal Pin No. Assignment(TB2)

Pin No.	Assignment	Pin No.	Assignment
1	+Vo	3	-SYN.
2	-Vo	4	+SYN.

※Terminal Pin No. Assignment(TB4)

Pin No.	Assignment
1	KNX-
2	KNX+

Note:Please use wires with a cross section of 0.5~2.5mm^2(14~20AWG) for TB1 and wires with a cross section of 0.5~1.5 mm^2(16~20AWG) for TB2.

■ INSTALLATION MANUAL

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