

MEAN WELL IDLV-45 Series 45W IDLV Series Constant Voltage PWM LED Driver Owner's Manual

Contents

- [1 IDLV-45 Series 45W IDLV Series Constant Voltage PWM LED Driver](#)
- [2 Product Information:](#)
- [3 Product Usage Instructions:](#)
 - [3.1 Documents / Resources](#)

IDLV-45 Series 45W IDLV Series Constant Voltage PWM LED Driver

Product Information:

The IDLV-45 series is a 45W PWM Output LED Driver. It is compliant with IS 15885 (Part 2/Sec13) standard and designed by Thomas Samuel. The driver is available in multiple models, including:

- IDLV-45-12: DC Voltage – 12V, Rated Current – 3.0A, Rated Power – 36W
- IDLV-45-24: DC Voltage – 24V, Rated Current – 1.88A, Rated Power – 45.12W
- IDLV-45-36: DC Voltage – 36V, Rated Current – 1.25A, Rated Power – 45W
- IDLV-45-48: DC Voltage – 48V, Rated Current – 0.94A, Rated Power – 45.12W
- IDLV-45-60: DC Voltage – 60V, Rated Current – 0.75A, Rated Power – 45W

The driver has a dimming range of 0~100% and a voltage tolerance. It operates with a wide voltage range of 90 ~ 295VAC and a frequency range of 47 ~ 63Hz. The power factor is greater than 0.95/115VAC, 0.92/230VAC, and 0.9/277VAC at full load. It also has a total harmonic distortion of less than 20% and an efficiency ranging from 84% to 90% depending on the model.

Product Usage Instructions:

To use the IDLV-45 series LED driver, follow these instructions:

1. Ensure that the input voltage is within the range of 90 ~ 295VAC and the frequency is between 47 ~ 63Hz.
2. Connect the AC power source to the driver's input terminals.
3. Make sure the total load on the driver does not exceed its rated power.
4. If dimming is required, connect the appropriate dimming control signal to the driver's dimming input terminal. The driver supports a dimming range of 0~100%.
5. Connect the LED load to the driver's output terminals. Make sure the polarity is correct.
6. For IDLV-45-12 model, an auxiliary DC output of nominal 12V is available. Connect the auxiliary load (up to 50mA) to the A-Type only.
7. Verify that the power factor, total harmonic distortion, and efficiency meet your requirements.

Refer to the user manual for more detailed instructions and safety precautions.

[View Fullscreen](#)

45W PWM Output LED Driver

IDLV-45 series
User's Manual

IS 15885(Part 2/Sec13)

THOMAS SAMUEL

THOMAS SAMUEL

R-41027766
(for IDLV-45-12,24,48 only)

A

File Name:IDLV-45-SPEC 2022-02-14

45W PWM Output LED Driver

IDLV-45 series

SPECIFICATION

MODEL

IDLV-45 -12

IDLV-45 -24

IDLV-45 -36

IDLV-45 -48

IDLV-45 -60

OUTPUT

DC VOLTAGE

12V

24V

36V

RATED CURRENT

3.0A

1.88A

1.25A

RATED POWER

36W

45.12W

45W

DIMMING RANGE

0~100%

VOLTAGE TOLERANCE

±10%

PWM FREQUENCY (Typ.)

1KHz(±20%)

SETUP TIME Note.3

500ms / 230VAC 1200ms/115VAC

AUXILIARY DC OUTPUT Note.4 Nominal 12V(deviation 11.4~12.6)@50mA for A-Type only

VOLTAGE RANGE Note.2 90 ~ 295VAC (Please refer to “STATIC CHARACTERISTIC” section)

FREQUENCY RANGE 47 ~ 63Hz

48V 0.94A 45.12W

60V 0.75A 45W

POWER FACTOR (Typ.)

PF>0.95/115VAC, PF>0.92/230VAC, PF>0.9/277VAC@full load (Please refer to “POWER FACTOR (PF) CHARACTERISTIC” section)

INPUT

TOTAL HARMONIC DISTORTION

THD< 20%(@load60%/115VAC,230VAC; @load75%/277VAC) (Please refer to “TOTAL HARMONIC DISTORTION” section)

EFFICIENCY (Typ.)

84%

86%

88%

88%

90%

AC CURRENT (Typ.)

0.6A / 115VAC 0.4A / 230VAC 0.3A / 277VAC

INRUSH CURRENT(Typ.) COLD START 30A(twidth=150s measured at 50% Ipeak) at 230VAC; Per NEMA 410

MAX. No. of PSUs on 16A CIRCUIT BREAKER

32 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC

LEAKAGE CURRENT

<0.75mA / 277VAC

NO LOAD POWER CONSUMPTION <0.5W for Blank-Type, <1.2W for A-Type

SHORT CIRCUIT

Shut down O/P voltage, re-power on to recovery

PROTECTION OVER CURRENT

105 ~ 115% Protection type : Hiccup mode, recovers automatically after fault condition is removed

WORKING TEMP.

Tcase=-20 ~ +85 (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)

MAX. CASE TEMP.

Tcase=+85

ENVIRONMENT WORKING HUMIDITY

20 ~ 90% RH non-condensing

STORAGE TEMP., HUMIDITY -40 ~ +80, 10 ~ 95% RH

TEMP. COEFFICIENT

±0.03%/ (0 ~ 40)

VIBRATION

10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes

SAFETY STANDARDS

UL8750,CSA C22.2 NO.250.13-12; BS EN/EN/AS/NZS 61347-1 & BS EN/EN/AS/NZS 61347-2-13 independent, BS EN/EN62384,BIS IS15885(for IDLV-45-12,24,48 only), EAC TP TC 004 approved

SAFETY & WITHSTAND VOLTAGE I/P-O/P:3.75KVAC

EMC

ISOLATION RESISTANCE I/P-O/P:100M Ohms / 500VDC / 25/ 70% RH

EMC EMISSION

Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load60%) ; BS EN/EN61000-3-3, 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:1KV), EAC TP TC 020

MTBF

386.59Khrs min. MIL-HDBK-217F (25)

OTHERS DIMENSION

120*75*25mm (L*W*H)

NOTE

PACKING

0.22Kg;54pcs/13Kg/ 0.93CUFT

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. , <https://www.meanwell.com/serviceDisclaimer.aspx>

File Name:IDLV-45-SPEC 2022-02-14

45W PWM Output LED Driver

DIMMING OPERATION

ACL

ACL ACN

TB1

ACN

DIM+

DIMVo+

TB2

Vo-

IDLV-45 series

Dimming principle for PWM style output Dimming is achieved by varying the duty cycle of the output current.
ON Output DC current

Io=0A

OFF TON
T

TON

Duty cycle(%) =

×100%

T

Output PWM frequency : 1KHz(±20%)

2 in 1 dimming function Applying additive 0 ~ 10VDC

Vo+ +

+

Vo-

—

DIM+ +

Additive Voltage DIM-

“DO NOT connect “DIM- to Vo-”

Applying additive 10V PWM signal (frequency range 300~3000Hz):

Vo+ +

+

Vo-

—

DIM+

Additive PWM signal

DIM-

“DO NOT connect “DIM- to Vo-”

Duty cycle of output current (%)

Duty cycle of output current (%)

100%

90%

80%

70%

60%

50%

40%

30%

20%

10%

0% 0V 1V

2V 3V 4V 5V 6V 7V 8V 9V 10V Dimming input: Additive voltage

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Duty cycle of additive 10V PWM signal dimming input

Note : 1. Min. duty cycle of output current is about 8% and the output current is not defined when $0\% < I_{out} < 8\%$. 2. The duty cycle of output current could drop down to 0% when dimming input is about 0Vdc or 10V PWM signal with 0% duty cycle.

File Name:IDLV-45-SPEC 2022-02-14

45W PWM Output LED Driver

IDLV-45 series

OUTPUT LOAD vs TEMPERATURE

LOAD (%)

100
80 70 60
40
20

-20 -10 0

10

20

30

40

AMBIENT TEMPERATURE, Ta ()

100
80 70 60
40
20

LOAD (%)

(HORIZONTAL)

-20 -10 0

15

30

45

60

85

Tcase ()

(HORIZONTAL)

LOAD (%)

STATIC CHARACTERISTIC

100

90

for 12V model

80

70

for others

60

50

40

90 100

135

180 200 230

295

INPUT VOLTAGE (V)

De-rating is needed under low input voltage.

PF

POWER FACTOR (PF) CHARACTERISTIC
Tcase at 75

1.00

0.95 0.90 0.85

277(45W) 230(45W) 115(36W)

0.80

0.75

50%

60%

70%

80%

90%

100%

LOAD

TOTAL HARMONIC DISTORTION (THD)

60V Model, Tcase at 75

19.00%

17.00%

15.00%

13.00%

11.00%

9.00%

7.00%

5.00%

50%

60%

70%

80%

90%

LOAD

277(45W) 230(45W) 115(36W)

100%

EFFICIENCY(%)

EFFICIENCY vs LOAD

IDLV-45 series possess superior working efficiency that up to 90% can be reached in field applications. 60V

Model,Tcase at 75

91%

90%

89%

277(45W)

230(45W)

88%

115(36W)

87%

86%

85%

50%

60%

70%

80%

90%

100%

LOAD

File Name:IDLV-45-SPEC 2022-02-14

THD(%)

45W PWM Output LED Driver
BLOCK DIAGRAM

IDLV-45 series
fosc : 70~150KHz

EMI FILTER

I/P

&

RECTIFIERS

POWER SWITCHING

O.L.P.

PWM&PFC CONTROL

RECTIFIERS

RECTIFIERS &
FILTER

CURRENT LIMIT
DETECTION CIRCUIT

AUX+(for A-Type) AUX-(for A-Type)
Vo+ VoDIM+ DIM-

75

6.5

MECHANICAL SPECIFICATION

Blank-Type

120 6.5

6.5

6.5

Case No.IDLC-45A Unit:mm

tc : Max. Case Temperature

1

2 3

TB1

4

1

2 3

TB2

4

tc 30

30

3

25

NOTE: Please use wires with a cross section of 0.75~1.5mm² for TB1 and wires with a cross section of 0.5~1.5mm² for TB2.

Terminal Pin No. Assignment(TB1)

Pin No. Assignment

1

ACL

2

ACL

3

ACN

4

ACN

Terminal Pin No. Assignment(TB2)

Pin No. Assignment

1

DIM+

2

DIM-

3

Vo+

4

Vo-

File Name:IDLV-45-SPEC 2022-02-14

45W PWM Output LED Driver

A-Type

120 6.5

75

6.5

6.5

6.5

30

IDLV-45 series

tc : Max. Case Temperature

1

2 3

TB1

4

1 2 3 TB2 4 5 6

tc 30

3

25

NOTE: Please use wires with a cross section of 0.75~1.5mm² for TB1 and wires with a cross section of 0.5~1.5mm² for TB2.

Terminal Pin No. Assignment(TB1)

Pin No. Assignment

1

ACL

2

ACL

3

ACN

4

ACN

Terminal Pin No. Assignment(TB2)

Pin No. Assignment Pin No.

1

DIM+

4

2

DIM-

5

3

Vo+

6

Assignment VoAUX+ AUX-

INSTALLATION MANUAL

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

File Name:IDLV-45-SPEC 2022-02-14

Documents / Resources



[MEAN WELL IDLV-45 Series 45W IDLV Series Constant Voltage PWM LED Driver](#) [pdf] Owner's Manual

IDLV-45 Series 45W IDLV Series Constant Voltage PWM LED Driver, IDLV-45 Series, 45W IDLV Series Constant Voltage PWM LED Driver, Constant Voltage PWM LED Driver, Voltage PWM LED Driver, PWM LED Driver, LED Driver