

MEAN WELL PLC-100-12 100W PLC Series Constant Voltage Current LED Driver Owner's Manual

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PLC-100-12 100W PLC Series Constant Voltage Current LED Driver

Product Information

The PLC-100 series is a 100W Single Output Switching Power Supply. It is available in various models, including PLC-100-12, PLC-100-15, PLC-100-20, PLC-100-24, PLC-100-27, and PLC-100-36. The user's manual for the product is included.

Here are the specifications for each model:

Model	DC Voltage	Rated Current	Current Range	Rated Power	Ripple & Noise (m ax.)	Voltage Adj. Range (Vo A DJ)	Current Adj. Range (Io A DJ)	Line Regulation	Load Regulation	Setup, Rise Time	Hold Up Time (Typ.)
PLC-100-12	12V	5A	0 – 5A	60W	150mV p-p	10.2 – 12V	3.75 – 5A	–	–	500ms, 80ms/230V AC 1200ms, 80ms/115VAC at full load	60ms/230VAC 16ms/115VAC at full load
PLC-100-15	15V	5A	0 – 5A	75W	150mV p-p	12.8 – 15V	3.75 – 5A	–	–	500ms, 80ms/230V AC 1200ms, 80ms/115VAC at full load	60ms/230VAC 16ms/115VAC at full load
PLC-100-20	20V	4.8A	0 – 4.8A	96W	150mV p-p	17 – 20V	3.6 – 4.8A	–	–	500ms, 80ms/230V AC 1200ms, 80ms/115VAC at full load	60ms/230VAC 16ms/115VAC at full load
PLC-100-24	24V	4A	0 – 4A	96W	150mV p-p	20.4 – 24V	3 – 4A	–	–	500ms, 80ms/230V AC 1200ms, 80ms/115VAC at full load	60ms/230VAC 16ms/115VAC at full load
PLC-100-27	27V	–	–	–	–	–	–	–	–	–	–
PLC-100-36	36V	–	–	–	–	–	–	–	–	–	–

Product Usage Instructions

To use the PLC-100 series Single Output Switching Power Supply, follow these instructions:

1. Make sure the input voltage is within the range of 90-264VAC or 127-370VDC.
2. Connect the power supply to the input power source using appropriate wiring.
3. Ensure that the load connected to the power supply does not exceed the rated current and power values specified for the model you are using.

4. Adjust the output voltage within the specified range using the voltage adjustment knob (Vo ADJ) if necessary.
5. Adjust the output current within the specified range using the current adjustment knob (Io ADJ) if necessary.
6. Ensure proper line regulation and load regulation for stable operation.
7. Allow sufficient setup and rise time for the power supply to stabilize after turning it on.
8. Check the hold-up time to ensure uninterrupted power supply during voltage fluctuations.
9. Refer to the user's manual for detailed information on power factor, total harmonic distortion, efficiency, AC current, inrush current, maximum number of PSUs on a circuit breaker, and leakage current.

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100W Single Output Switching Power Supply

PLC-100 series

SPECIFICATION

MODEL

PLC-100-12

LPS

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PLC-100-15 PLC-100-20 PLC-100-24 PLC-100-27 PLC-100-36

User's Manual

PLC-100-48

OUTPUT

DC VOLTAGE

12V

15V

20V

24V

CONSTANT CURRENT REGION Note.4 9 ~ 12V

11.25 ~ 15V

15 ~ 20V

18 ~ 24V

RATED CURRENT

Note.6 5A

5A

4.8A

4A

CURRENT RANGE Note.6 0 ~ 5A

0 ~ 5A

0 ~ 4.8A

0 ~ 4A

RATED POWER

Note.6 60W

75W

96W

96W

RIPPLE & NOISE (max.) Note.2 150mVp-p

150mVp-p

150mVp-p

150mVp-p

VOLTAGE ADJ. RANGE(V_o ADJ) 10.2 ~ 12V

12.8 ~ 15V

17 ~ 20V

20.4 ~ 24V

CURRENT ADJ. RANGE(I_o ADJ) 3.75 ~ 5A

3.75 ~ 5A

3.6 ~ 4.8A

3 ~ 4A

VOLTAGE TOLERANCE Note.3 $\pm 3.0\%$

$\pm 3.0\%$

$\pm 3.0\%$

$\pm 3.0\%$

LINE REGULATION

±1.0%

LOAD REGULATION

±2.0%

SETUP, RISE TIME

500ms, 80ms/230VAC 1200ms, 80ms/115VAC at full load

HOLD UP TIME (Typ.)

60ms/230VAC 16ms/115VAC at full load

27V 20.25 ~ 27V 3.55A 0 ~ 3.55A 95.85W 150mVp-p 23 ~ 27V 2.6 ~ 3.55A ±3.0%

36V 27 ~ 36V 2.65A 0 ~ 2.65A 95.4W 150mVp-p 30.6 ~ 36V 2 ~ 2.65A ±2.0%

48V 36 ~ 48V 2A 0 ~ 2A 96W 200mVp-p 40.8 ~ 48V 1.5 ~ 2A ±2.0%

INPUT

VOLTAGE RANGE Note.5 90 ~ 264VAC 127 ~ 370VDC

FREQUENCY RANGE

47 ~ 63Hz

POWER FACTOR (Typ.)

PF>0.95/115VAC, PF>0.95/230VAC at full load (Please refer to "Power Factor Characteristic" curve)

TOTAL HARMONIC DISTORTION THD< 20% when output loading75% at 115VAC/230VAC input

EFFICIENCY (Typ.)

83%

87%

88.5%

88.5%

88%

88%

AC CURRENT (Typ.) INRUSH CURRENT (Typ.)

12V:0.8A/115VAC 0.4A/230VAC 15V:0.9A/115VAC 0.45A/230VAC COLD START 40A($t_{width}=950s$ measured at 50% I_{peak}) at 230VAC

20V ~ 48V:1.1A/115VAC

88.5% 0.55A/230VAC

MAX. No. of PSUs on 16A CIRCUIT BREAKER

3 units (circuit breaker of type B) / 5 units (circuit breaker of type C) at 230VAC

LEAKAGE CURRENT

<0.75mA / 240VAC

OVER CURRENT (Typ.) Note.4 95 ~ 102% Protection type : Constant current limiting, recovers automatically after fault condition is removed

PROTECTION OVER VOLTAGE

13 ~ 16V

16.5 ~ 20V

22 ~ 27V

27 ~ 34V

30 ~ 36V

Protection type : Shut down and latch off o/p voltage, re-power on to recover

39 ~ 48V

OVER TEMPERATURE

Shut down o/p voltage, re-power on to recover

WORKING TEMP. WORKING HUMIDITY

-30 ~ +50 (Refer to "Derating Curve") 20 ~ 95% RH non-condensing

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

TEMP. COEFFICIENT

±0.03%/ (0 ~ 50)

VIBRATION

10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes

52 ~ 64V

SAFETY STANDARDS

UL1310, TUV BS EN/EN60950-1, BS EN/EN61347-1, BS EN/EN61347-2-13, GB19510.14, GB19510.1, Note.7
CAN/CSA C22.2 No. 223-M91(except for 48V), EAC TP TC 004 approved

SAFETY & EMC OTHERS NOTE

WITHSTAND VOLTAGE

I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC

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

EMC EMISSION

Compliance to BS EN/EN55015, GB17743, GB17625.1, BS EN/EN61000-3-2,-3, Class C (70% load) ; 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, BS EN/EN55024, light industry level, (surge
4KV), criteria A,EAC TP TC 020

MTBF

297.9Khrs min. MIL-HDBK-217F (25)

DIMENSION

200.5*69.5*35mm (L*W*H)

PACKING

0.52Kg; 25pcs/14Kg/0.65CUFT

Product Liability DisclaimerFor detailed information, please refer to
<https://www.meanwell.com/serviceDisclaimer.aspx>

File Name:PLC-100-SPEC 2021-12-24

100W Single Output Switching Power Supply
Mechanical Specification
200.5

PLC-100 series
Case No.981A Unit:mm
6.26

20.2

69.5

T case

100.25

34.75

2-R2.5

1

2-R9.0

1

20.2

2

2

3

6.26

T case: Max. Case Temperature.

35

Block Diagram

Terminal Pin No. Assignment (TB1) : SWITCHLAB MB310-75003

Pin No. Assignment

1

FG

2

AC/N

3

AC/L

Terminal Pin No. Assignment (TB2) : SWITCHLAB MB310-75002

Pin No. Assignment

1

+V

2

-V

Fosc : 100KHz

EMI FILTER

I/P

&

RECTIFIERS

PFC CIRCUIT

POWER SWITCHING

RECTIFIERS &
FILTER

+V -V

O.L.P.

FG

O.L.P.

PWM & PFC

PFC

CONTROL

CONTROL

DETECTION CIRCUIT

O.V.P.

Derating Curve

Static Characteristics

LOAD (%) LOAD (%)

100 80 60 40 20

-30

0

10

20

30

40

50

60 (HORIZONTAL)

AMBIENT TEMPERATURE (°C)

100 90 80 70 60 50 40

90 100 125 135 145 155 165 175 180 200 230 264

INPUT VOLTAGE (V) 60Hz

File Name:PLC-100-SPEC 2021-12-24

PF EFFICIENCY (%)

100W Single Output Switching Power Supply

PLC-100 series

Power Factor Characteristic

1.00 0.98 0.96 0.94 0.92 0.90 0.88 0.86 0.84 0.82 0.80 0.78

50%

Constant Current Mode

60%

70%

80%

90%

LOAD

115V 230V
100% (100W)

EFFICIENCY vs LOAD (48V Model)

PLC-100 series possess superior working efficiency that up to 88.5% can be reached in field applications.

92

90

88

86

84

82

80 115V
78

76

230V

74

72

70

68

66 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

LOAD

DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method “direct drive” and “with LED driver”. A typical LED power supply may either work in “constant voltage mode (CV) or constant current mode (CC)” to drive the LEDs. Mean Well’s LED power supply with CV+ CC characteristic can be operated at both CV mode [with LED driver, at area (A)] and CC mode [direct drive, at area (B)].

$V_o(\%)$

100

75 (min.)

(A) Constant Voltage area

(B) Constant
Current area

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems. Should there be any compatibility issues, please contact MEAN WELL.

(C) Hiccup Protection

50


100

$I_o(\%)$

Typical LED power supply I-V curve

File Name:PLC-100-SPEC 2021-12-24

Documents / Resources

	<p>MEAN WELL PLC-100-12 100W PLC Series Constant Voltage Current LED Driver [pdf] Owner's Manual</p> <p>PLC-100-12 100W PLC Series Constant Voltage Current LED Driver, PLC-100-12 100W, PLC Series Constant Voltage Current LED Driver, Series Constant Voltage Current LED Driver, Constant Voltage Current LED Driver, Voltage Current LED Driver, Current LED Driver</p>
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References

- [Product Liability Disclaimer-MEAN WELL Switching Power Supply Manufacturer](#)