



FDL-65 series





#### Features

- · Constant Current mode output
- Metal housing design
- Built-in active PFC function
- No load power consumption < 0.5W</li>
- IP65 rating for indoor or outdoor installations
- · Output current adjustable via potentiometer
- 3 years warranty

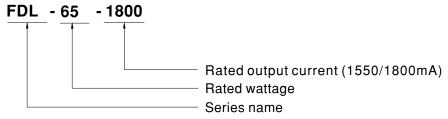
### Applications

- · LED flood lighting
- · LED decorative lighting
- · LED architectural lighting

### Description

FDL-65 series is a 65W LED AC/DC LED power supply featuring the constant current mode output, targeting at but not limited to LED flood lighting applications. FDL-65 operates from  $180 \sim 295 \text{VAC}$  and offers models working perfectly for the voltage up to 42 V (1550 mA model) and 36 V (1800 mA model). Thanks to the high efficiency up to 90%, with the fanless design, the entire series is able to operate for -40%  $\sim +90\%$  case temperature under free air convection. The design of metal housing and IP65 ingress protection level allows this series to fit both indoor and outdoor applications. FDL-65 is equipped with output current adjustable function so as to provide the optimal design flexibility for LED lighting system.

## ■ Model Encoding









# FDL-65 series

### **SPECIFICATION**

NATED CURRENT   1550mA   1800mA   1800mA   64.8W	
CONSTANT CURRENT REGION Montal   OPEN CIRCUIT YOLTAGE[max.]   50.0	
OUTPUT         OPEN CIRCUIT VOLTAGE(max)   50V   45V   50V   20 P - 1.8A   0.9 − 1.8A   0	
CURRENT ADJ. RANGE   0.77-1.55A   0.9-1.8A	
CURRENT TOLERANCE   15.0%   500ms/230VAC   180 - 295VAC   254 ~ 417VDC   (Please refer to "STATIC CHARACTERISTIC" section)	
SET UP TIME   Note.3   500ms/230VAC	
VOLTAGE RANGE	
POWER FACTOR (Typ.)   PF≥0.95/230VAC, PF≥0.90/27TVAC@full load (Please refer to "STATIC CHARACTERISTIC" section)	
POWER FACTOR (Typ.)	
POWER FACTOR (Typ.)   (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)	
INPUT   EFFICIENCY (Typ.)   90%   90%   90%   90%	
AC CURRENT (Typ.)   0.48A / 230VAC   0.39A/27TVAC     INRUSH CURRENT (Typ.)   COLD START 50A(twidth=270µs measured at 50%   peak)/230VAC; Per NEMA 410     MAX. No. of PSUs on 16A   CIRCUIT BREAKER   28 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC     LEAKAGE CURRENT   <0.75mA / 27TVAC     NO LOAD POWER CONSUMPTION   <0.5W     SHORT CIRCUIT   Hiccup mode, recovers automatically after fault condition is removed     46 ~ 56V   40 ~ 48V     Shut down o/p voltage, re-power on to recover     OVER VOLTAGE   OVER TEMPERATURE   Hiccup mode, recovers automatically after fault condition is removed     WORKING TEMP.   Tcase=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)     MAX. CASE TEMP.   Tcase=+90°C   WORKING HUMIDITY   20 ~ 95% RH non-condensing     STORAGE TEMP., HUMIDITY   20 ~ 95% RH     TEMP. COEFFICIENT   ±0.03%/°C (0 ~ 60°C)     VIBRATION   10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes     SAFETY & SAFETY STANDARDS   LVD EN61347-1,EN61347-2-13 Independent, GB19510.1,GB19510.14,IP65 approved     ISOLATION RESISTANCE   I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH	
INRUSH CURRENT(Typ.)  COLD START 50A(twidth=270µs measured at 50% Ipeak)/230VAC; Per NEMA 410  MAX. No. of PSUs on 16A CIRCUIT BREAKER  LEAKAGE CURRENT  NO LOAD POWER CONSUMPTION  OVER VOLTAGE  OVER TEMPERATURE  WORKING TEMP.  MAX. CASE TEMP.  WORKING HUMIDITY  ENVIRONMENT  ENVIRONMENT  ENVIRONMENT  ENVIRONMENT  SAFETY &  SAFETY SANDARDS  WITHSTAND VOLTAGE  INC. DE ARM STANDARDS  LO LD START 50A(twidth=270µs measured at 50% Ipeak)/230VAC; Per NEMA 410  28 units (circuit breaker of type C) at 230VAC  28 units (circuit breaker of type C) at 230VAC  28 units (circuit breaker of type C) at 230VAC  28 units (circuit breaker of type C) at 230VAC  28 units (circuit breaker of type C) at 230VAC  28 units (circuit breaker of type C) at 230VAC  20 vest case of type C) at 230VAC  40 ~ 48V  Shut down o/p voltage, re-power on to recover  OVER TEMPERATURE  Hiccup mode, recovers automatically after fault condition is removed  Tcase=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASe=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASe=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASe=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  TCASE=-40 ~ +90°C (Plea	
MAX. No. of PSUs on 16A CIRCUIT BREAKER  LEAKAGE CURRENT NOLOAD POWER CONSUMPTION NOLOAD POWER CONSUMPTION OVER VOLTAGE OVER VOLTAGE  WORKING TEMP. ENVIRONMENT ENVIRONMENT ENVIRONMENT STORAGE TEMP., HUMIDITY VIBRATION  SAFETY 8 WITHSTAND VOLTAGE WITHSTAND VOLTAGE WITHSTAND VOLTAGE  WITHSTAND VOLTAGE  WITHSTAND VOLTAGE  128 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC  140 × 230VAC  140 × 48V  40 ~ 48V  40 ~ 48V  40 ~ 48V  40 ~ 48V  Find down o/p voltage, re-power on to recover OVER TEMPERATURE Hiccup mode, recovers automatically after fault condition is removed  WORKING TEMP. Tcase=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP. TCASE=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP. TCASE=+90°C WORKING HUMIDITY 20 ~ 95% RH non-condensing  STORAGE TEMP., HUMIDITY 40 ~ +80°C, 10 ~ 95% RH  TEMP. COEFFICIENT 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes  SAFETY \$AFETY STANDARDS  LVD EN61347-1,EN61347-2-13 Independent, GB19510.1,GB19510.14,IP65 approved  WITHSTAND VOLTAGE 1/P-O/P:3.75KVAC 1/P-FG:2KVAC 0/P-FG:1.5KVAC	
CIRCUIT BREAKER   28 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC	
NO LOAD POWER CONSUMPTION    **SHORT CIRCUIT**  BY SHORT CIRCUIT**  Hiccup mode, recovers automatically after fault condition is removed  ### 46 ~ 56V**    40 ~ 48V**	
SHORT CIRCUIT  OVER VOLTAGE  OVER TEMPERATURE  Hiccup mode, recovers automatically after fault condition is removed  Shut down o/p voltage, re-power on to recover  OVER TEMPERATURE  WORKING TEMP.  Tcase=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP.  Tcase=+90°C  WORKING HUMIDITY  20 ~ 95% RH non-condensing  STORAGE TEMP, HUMIDITY  -40 ~ +80°C, 10 ~ 95% RH  TEMP. COEFFICIENT  VIBRATION  10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes  SAFETY & WITHSTAND VOLTAGE  I/P-O/P:3.75KVAC  I/P-FG:2KVAC  O/P-FG:1.5KVAC  ISOLATION RESISTANCE  I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH	
PROTECTION OVER VOLTAGE    A6 ~ 56V   Shut down o/p voltage, re-power on to recover	
PROTECTION OVER VOLTAGE  Shut down o/p voltage, re-power on to recover  OVER TEMPERATURE Hiccup mode, recovers automatically after fault condition is removed  WORKING TEMP. Tcase=-40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  MAX. CASE TEMP. Tcase=+90°C  WORKING HUMIDITY 20 ~ 95% RH non-condensing  STORAGE TEMP., HUMIDITY -40 ~ +80°C, 10 ~ 95% RH  TEMP. COEFFICIENT ±0.03%/°C (0 ~ 60°C)  VIBRATION 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes  SAFETY & WITHSTAND VOLTAGE I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC  ISOLATION RESISTANCE I/P-O/P:100M Ohms / 500VDC / 25°C/70% RH	
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MAX. CASE TEMP.   Tcase=+90°C   WORKING HUMIDITY   20 ~ 95% RH non-condensing	
WORKING HUMIDITY   20 ~ 95% RH non-condensing	
ENVIRONMENT    STORAGE TEMP., HUMIDITY   -40 ~ +80°C, 10 ~ 95% RH     TEMP. COEFFICIENT   ±0.03%°C (0 ~ 60°C)     VIBRATION   10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes     SAFETY 8	
TEMP. COEFFICIENT         ±0.03%/°C (0 ~ 60°C)           VIBRATION         10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes           SAFETY STANDARDS         LVD EN61347-1,EN61347-2-13 Independent, GB19510.1,GB19510.14,IP65 approved           WITHSTAND VOLTAGE         I/P-O/P:3.75KVAC         I/P-FG:2KVAC         O/P-FG:1.5KVAC           ISOLATION RESISTANCE         I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH	
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SAFETY 8 EMC SAFETY STANDARDS LVD EN61347-1,EN61347-2-13 Independent, GB19510.1,GB19510.14,IP65 approved  LVD EN61347-1,EN61347-2-13 Independent, GB19510.1,GB19510.14,IP65 approved  I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC  ISOLATION RESISTANCE I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH	
SAFETY & WITHSTAND VOLTAGE         I/P-O/P:3.75KVAC         I/P-FG:2KVAC         O/P-FG:1.5KVAC           ISOLATION RESISTANCE         I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH	
EMC ISOLATION RESISTANCE I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH	
<b>EMC EMISSION</b> Compliance to EN55015, EN61000-3-2 Class C (load≥60%); EN61000-3-3.GB17743.GB17625.1	
EMC IMMUNITY Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level(surge immunity:Line-Earth:4KV,Line-Earth:4K	-Line:2KV)
MTBF 594.9K hrs min. MIL-HDBK-217F (25°C)	
OTHERS         DIMENSION         151*53*31.5mm (L*W*H)	
PACKING 0.42Kg; 24pcs / 11.08Kg / 0.73CUFT	
<ul> <li>NOTE</li> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature.</li> <li>2. Please refer to "DRIVING METHODS OF LED MODULE".</li> <li>3. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.</li> <li>4. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.</li> </ul>	the

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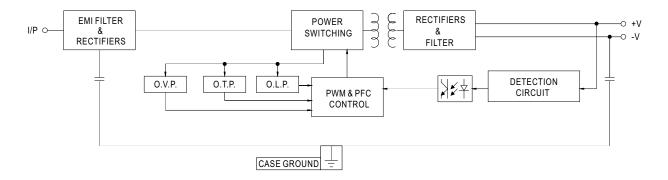




# FDL-65 series

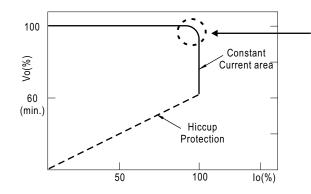
### **■** BLOCK DIAGRAM

PWM fosc: 60~130KHz



### ■ DRIVING METHODS OF LED MODULE

 $\ensuremath{\,\mathbb{X}}$  This series works in constant current mode to directly drive the LEDs.



Typical output current normalized by rated current (%)

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.





FDL-65 series

#### ■ OUTPUT LOAD vs TEMPERATURE 100 100 80 80 60 60 LOAD (%) LOAD (%) 40 40 20 20 90 (HORIZONTAL) -25 -10 0 70 (HORIZONTAL) -40 15 30 50 60 55 65 75 AMBIENT TEMPERATURE, Ta (°℃) Tcase (°C) ■ STATIC CHARACTERISTIC **■ POWER FACTOR (PF) CHARACTERISTIC** ※ Tcase at 80° C 0.98 100 0.96 90 0.94 80 0.92 70 0.9 뿝 -277V LOAD (%) 0.88 -230V 0.86 50 0.84 40 0.82 ი გ 180 200 210 220 230 240 250 260 270 280 295 60% 70% 80% 90% 100% INPUT VOLTAGE (V) 60Hz LOAD ■ TOTAL HARMONIC DISTORTION (THD) **■** EFFICIENCY vs LOAD FDL-65 series possess superior working efficiency that up to 90% can be reached in field applications. imes 1800mA Model, Tcase at 80 $^{\circ}$ C 91.5 25% 91 20% **EFFICIENCY(%)** 90.5 묻 15% 277VAC 90 <u>♣</u> 277V 10% 89.5 **230V** 89 5% 88.5 60% 70% 90% 100% 88 60% 80% 90% 100% LOAD LOAD



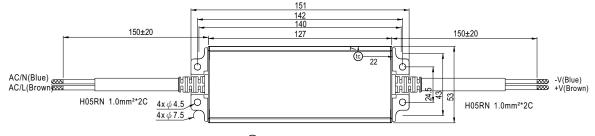
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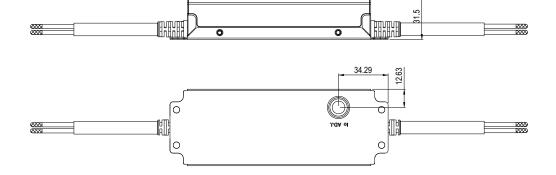
# FDL-65 series

### **■ MECHANICAL SPECIFICATION**

CASE NO.: 246A Unit:mm



• to : Max. Case Temperature



O Note: Please connect the case to FG for the complete EMC deliverance.

### ■ INSTALLATION MANUAL

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

