# GEPS12-150U-EU

## 24V 200W Power Supply

All Tetra® power supplies are designed specifically for the sign industry by our team of electronics experts. Tetra power supplies are built to stand the test of time, backed by the most extensive reliability testing in the industry and a five-year warranty.

## Features:

- High Efficiency (Up to 90.0%)
- Constant Voltage Output
- Input Surge Protection: 4kV line-line, 6kV line-earth
- All-Around Protection: OCP, OVP, SCP, OTP
- IP67
- SELV Output
- Suitable for Independent Use
- 5 Years Warranty

## Description

This is a 150W, constant-voltage IP67 LED driver that operates from 100-240Vac input with excellent power factor. It is created for many lighting applications including LED strip, architectural, decorative and signage. The high efficiency of the driver and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, over current, output over voltage, over temperature, and short circuit.

# Models

| Output Voltage | Rated Voltage Range (1) | Output Current Range | Max. Output Power | Typical Efficiency (2) | Power Factor (2) | |
|---|---|---|---|---|---|---|
| | | | | | 120Vac | 220Vac |
| 12 V | 100–240 Vac 127~250 Vdc | 0~12.5 A | 150 W | 90.0% | 0.99 | 0.96 |

**Notes:** (1) Extreme input voltage range: 90–305Vac, and 90–108Vac is for safety operation (see below "Derating" curve for details)
(2) Measured at 100% load and 220Vac input (see below "General Specifications" for details)
(3) Not intended for "No Load" operation

# Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Input Voltage | 90 Vac | 100–240 Vac | 305 Vac | 127~250Vdc |
| Input Frequency | 47 Hz | 50–60 Hz | 63 Hz | |
| Leakage Current | - | - | 0.70 mA | IEC60598-1; 240Vac/60Hz |
| Input AC Current | - | - | 1.6 A | Measured at 100% load and 120Vac input. |
| | - | - | 0.9 A | Measured at 100% load and 220Vac input. |
| Inrush Current($I^2t$) | - | - | 2.56 $A^2$s | At 220Vac input, 25°C cold start, duration=760 μs, 10%Ipk–10%Ipk. See Inrush Current Waveform for details. |
| PF | 0.90 | - | - | At 100–240Vac, 50–60Hz, 60%–100% load(90–150W) |
| THD | - | - | 20% | |
| THD | - | - | 10% | At 220–240Vac, 50–60Hz, 75%–100% load (112.5–150W) |

# MCB Loading

| Type B 10A | Type B 16A | Type C 10A | Type C 16A |
|---|---|---|---|
| 2 | 4 | 4 | 7 |

**Current**

# Output Specifications

| Parameter | | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|---|
| Output Voltage Tolerance | | –2.5%Vo | – | 2.5%Vo | At 100% load condition |
| Output Voltage | | – | 12.5 V | – | At 100% load condition |
| Total Output Voltage Ripple (pk–pk) | | – | – | 2%Vo | Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor. |
| Dimmable | | – | No | – | |
| Startup Overshoot/ Undershoot | | – | – | 5%Vo | At 100% load condition |
| Line Regulation | | – | – | ±0.5% | Measured at 100% load |
| Load Regulation | | – | – | ±1.5% | |
| Turn-on Delay Time | | – | – | 1.0 s | Measured at 120Vac input, 60%–100% load |
| | | – | – | 0.5 s | Measured at 220Vac input, 60%–100% load |
| Hold up Time | | – | 15 ms | – | Measured at 220Vac input, 100% load |
| Load Dynamic Response | Output Deviation | – | – | 5%Vo | R/S: 1 A/µs Load: 25%~75% load |
| | Settling Time | – | – | 10 ms | |
| Temperature Coefficient of Vo | | – | 0.03%/°C | – | Case temperature= 0°C~Tc max |

**Notes:** All specifications are typical at 25°C unless otherwise stated.

# General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Efficiency at 120Vac input | 85.5% | 87.5% | – | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Efficiency at 220Vac input: | 88.0% | 90.0% | – | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Operating Case Temperature for Safety Tc_s | –40°C | – | +90°C | |
| Operating Case Temperature for Warranty Tc_w | –40°C | – | +75°C | Case temperature for 5 years warranty |
| Storage Temperature | –40°C | – | +85°C | Humidity: 5%RH to 100%RH |
| Dimensions Millimeters (L x W x H) | 180 x 67.5 x 36.5 | | | With mounting ear 201 x 67.5 x 36.5 |
| Net Weight | – | 950 g | – | |

**Notes:** All specifications are typical at 25°C unless otherwise stated.

# Safety & EMC Compliance

| Safety Category | Standard |
|---|---|
| CE | EN 61347-1, EN 61347-2-13 |
| **EMI Standards** | **Notes** |
| EN 55015[1] | Conducted emission Test & Radiated emission Test |
| EN 61000-3-2 | Harmonic current emissions |
| EN 61000-3-3 | Voltage fluctuations & flicker |
| **EMS Standards** | **Notes** |
| EN 61000-4-2 | Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge |
| EN 61000-4-3 | Radio-Frequency Electromagnetic Field Susceptibility Test-RS |
| EN 61000-4-4 | Electrical Fast Transient/ Burst-EFT |
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV |
| EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS |
| EN 61000-4-8 | Power Frequency Magnetic Field Test |
| EN 61000-4-11 | Voltage Dips |
| EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

**Note:** (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.
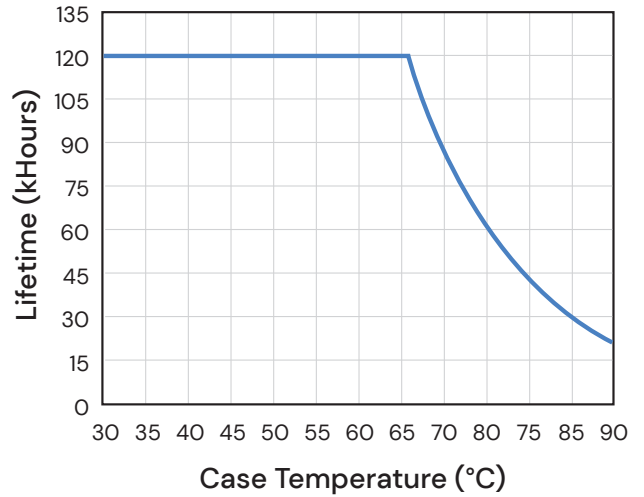
# Protection Functions

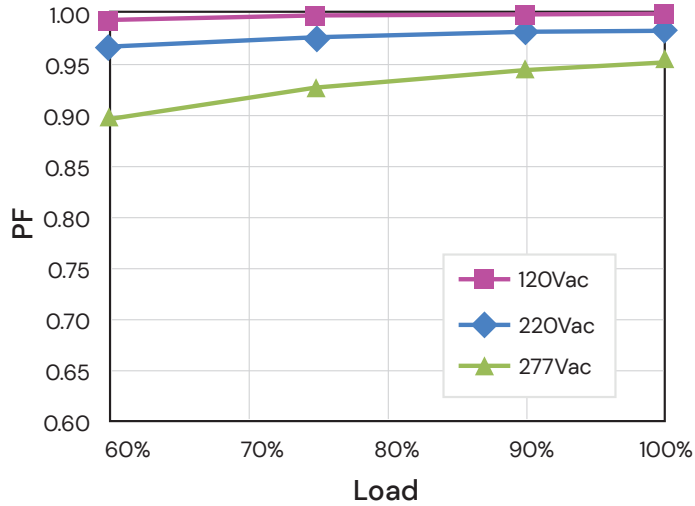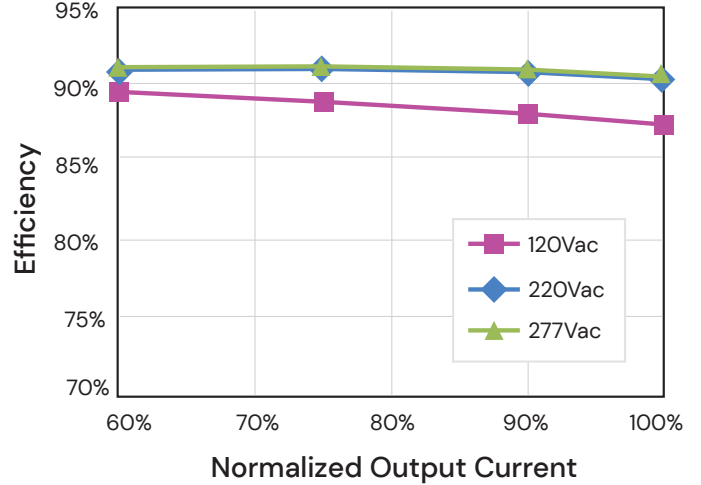| Parameter | Notes |
|---|---|
| Over Current Protection | Auto Recovery. The driver shall be self-recovery when the fault condition is removed. |
| Over Voltage Protection | Limits output voltage at no load and in case the normal voltage limit fails. |
| Short Circuit Protection | Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed. |
| Over Temperature Protection | Auto Recovery. Returning to normal after over temperature is removed. |

## Derating



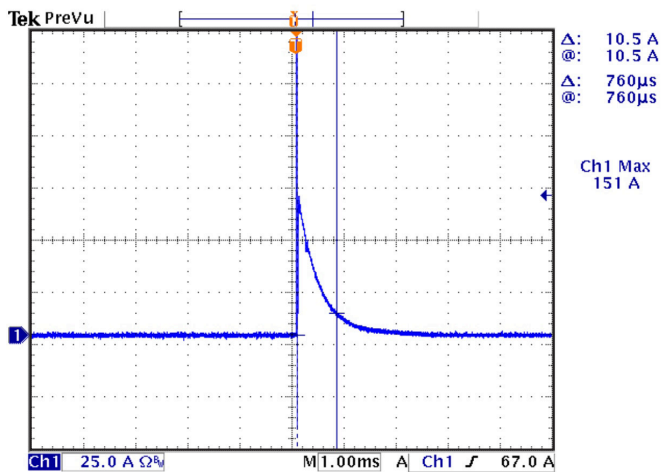108 Vac, 100% load
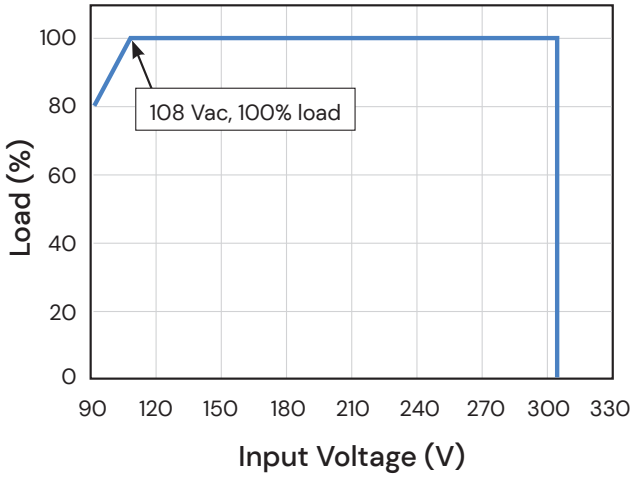
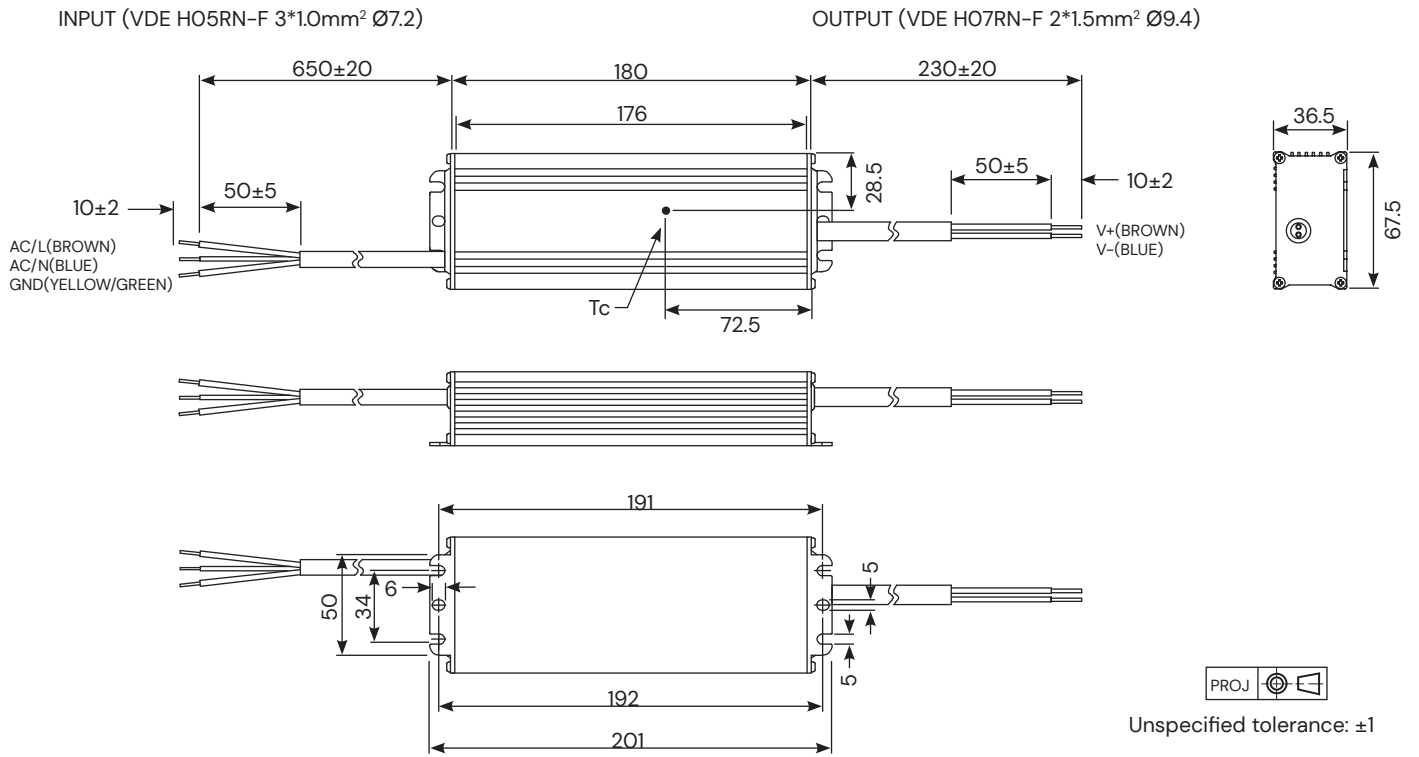## Lifetime vs. Case Temperature



## Power Factor



## Efficiency vs. Load



## Inrush Current Waveform



Tek PreVu

Δ: 10.5 A
@: 10.5 A
Δ: 760μs
@: 760μs

Ch1 Max
151 A

Ch1  25.0 A Ω     M 1.00ms  A  Ch1 ʃ  67.0 A

## Total Harmonic Distortion

# Mechanical Outline

INPUT (VDE H05RN-F 3*1.0mm² Ø7.2)

OUTPUT (VDE H07RN-F 2*1.5mm² Ø9.4)

650±20  180  230±20

176

10±2  50±5

AC/L(BROWN)
AC/N(BLUE)
GND(YELLOW/GREEN)

28.5

50±5  10±2

V+(BROWN)
V−(BLUE)

Tc

72.5

36.5

67.5

191

50  34  6

5

5

192

201

PROJ

Unspecified tolerance: ±1

CE  UKCA  CB