# APMS050C135HD LED Drivers

**Replacement BH Voltage driver for use on Appleton™ 2K, 3K and 4K Lumen Mercmaster™ LED Low Profile, 2K, 3K and 4K Lumen Industrial Mercmaster LED Low Profile, 3500 and 5500 Lumen Mercmaster LED Generation 3, and 3500 and 5500 Lumen Industrial Mercmaster LED Generation 3, LED Rigmaster,™ LED Industrial Rigmaster, LED Explosionproof Rigmaster and ATX™ FNLED.**




## Features

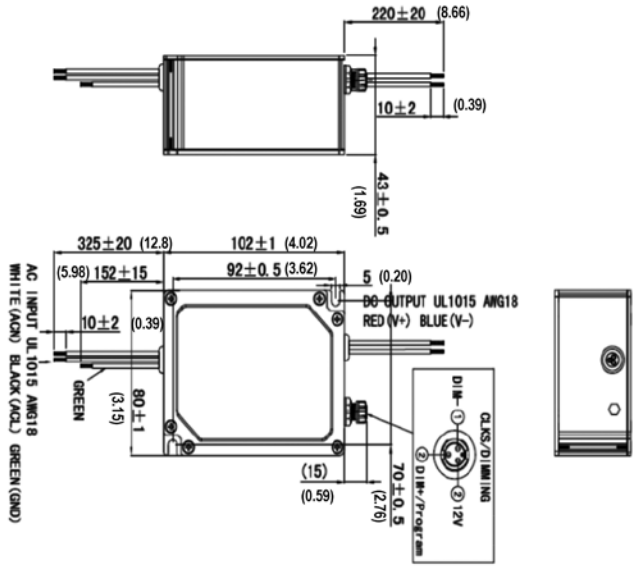
- Input voltage: 347-480 Vac
- Built-in active PFC function: 0.98 Typ.
- Built-in Lightning protection.
- High efficiency: 87% Typ.
- Waterproof (IP66)
- Constant Current / 0-10V Dimming
- Clock Dimming(CLK)/PWM Dimming
- Protection: OVP, SCP, OTP
- Full Power at 65% Io max ~ 100% Io max (Constant Power)
- UL Type HL

## NEC/CEC Compliances

- UL8750, UL1310
- CSA 250.13

| Output Current | Input Voltage | Max. Output Power | Typical Efficiency | Typical Power Factor | Used in BH Luminaire Models | Part Number |
|---|---|---|---|---|---|---|
| 500 mA | 347-480 Vac | 50 W | 87% | 0.98 | MLGL3 | APMS050C135HD50 |
| 600 mA | 347-480 Vac | 50 W | 87% | 0.98 | RM*2, IRM*2, ERM*2 | APM050C135HD060 |
| 720 mA | 347-480 Vac | 50 W | 87% | 0.98 | MLLED2 | APMS050C135HD72 |
| 780 mA | 347-480 Vac | 50 W | 87% | 0.98 | MLGL5 | APMS050C135HD78 |
| 1000 mA | 347-480 Vac | 50 W | 87% | 0.98 | MLLED3 | APMS050C135HD10 |
| 1040 mA | 347-480 Vac | 50 W | 87% | 0.98 | RM*4, IRM*4, ERM*4 | APM050C135HD104 |
| 1300 mA | 347-480 Vac | 50 W | 87% | 0.98 | MLLED4 | APMS050C135HD13 |

**Dimensions in Millimeters (Inches)**



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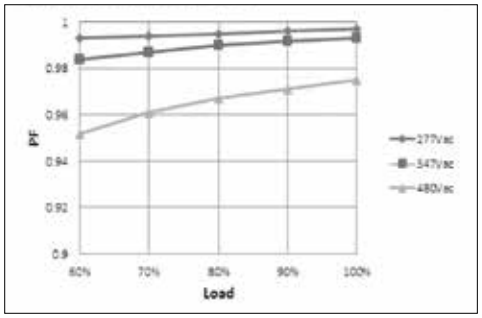
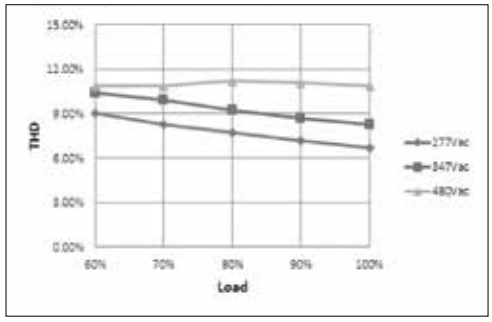
## Diagrams

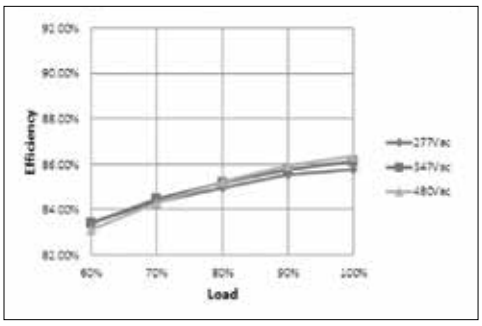
**Power Factor vs. Load Curve**



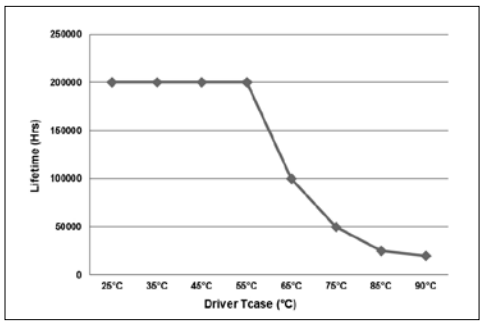

**THD Curve**



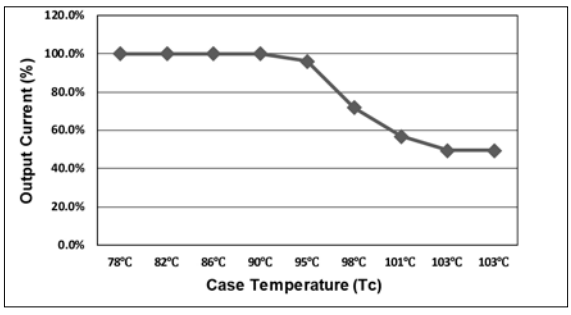

**Efficiency vs. Load Curve**




**Lifetime vs. Driver Tcase**




**OTP**



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**Specifications** ①

| | | |
|---|---|---|
| **Input** | Efficiency (277 Vac) ② | 85% Typical, >83% at full load |
| | Efficiency (480 Vac) ② | 87%, Typical, >85% at full load |
| | Voltage Range (V) | 249–528 Vac |
| | Voltage Rated (V) | 277–480 Vac |
| | Frequency Range (Hz) | 47 ~ 63 |
| | Power Factor | 0.96 Typical, at 480 Vac full load |
| | | >0.9 with 50% ~ 100% load, at 277 ~ 480 Vac |
| | THD | <15% with 80% ~ 100% load, at 277 ~ 480 Vac |
| | | <20% with 50% ~ 100% load, at 277 ~ 480 Vac |
| | AC Current (Max.) | 0.3A MAX at 277 Vac |
| | Inrush Current (Max.) | 65 Amp at 480 Vac input +25°C Cold Start ( time wide=500 uS, measured at 50% Ipeak.) |
| | Leakage Current (Max.) | 0.75 mA at 480 Vac/60Hz |
| **Output** | Output Voltage Range (V) | 56-22 |
| | Output Current Range (mA) | 90-1350 |
| | Rated Power (W) | 50 (max.) |
| | Output Current Settable Range | 0.45 - 1.35 A dc |
| | Constant Power Output Settable Range | 65%Io_max ~ 100% Io_max |
| | Ripple Current | <10%((PK-AV) /AV), full load |
| | Current Tolerance | 5% |
| | Line Regulation | 3% |
| | Load Regulation | 5% |
| | Turn On Delay Time | 2s (typ.), measured at 277 Vac input |
| **Dimming Control** | 12 Vdc Output Voltage (Vdc) | 10.8 V min. ~ 12 V typ. ~ 13.2 V max. |
| | 12 Vdc Output Current (mA) | 0 mA ~ 20 mA max. |
| | 0 ~ 10V/DMI+ Voltage | Absolute maximum voltage -10 V min ~ 20 V max |
| | 0 ~ 10V/DMI+ Short Current | 280 uA ~ 450 uA (DIM(+)=0) |
| | Dimming Function | 0 ~ 10 V/10% Io ~ 100% Io ref. Dimming module diagram and dimming curve |

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**Specifications** ①

| | | |
|---|---|---|
| **Protection** | Over Voltage (V) | Protection type: Voltage limiting. Output will not exceed the upper limit voltage, recovers automatically after fault condition is removed. |
| | Short Circuit | Protection type: Hiccup mode. Recovers automatically after short is removed. |
| | Over Temperature | Protection type: Decrease output current.<br>When Tc reaches 100 °C +/- 10 °C, the output current decrease to approximate 50% of rated value. (See OTP plot.) |
| **Environment** | Tc | -40 °C to +90 °C max. |
| | Operating Humidity | 20 ~ 95% RH non-condensing |
| | Storage Temp., Humidity | -40 °C ~ +85 °C, 10-95% RH |
| | Vibration | 10-500 Hz, 5G 12 min/cycle, period for 72 min. each along X, Y, Z axes |
| **Safety & EMC** | Safety Standard | UL1310 Class 2, UL8750, CSA 250.13 |
| | Withstand Voltage | I/P-O/P:3.75K Vac I/P-FG:2KV O/P-FG:1.5KV |
| | Isolation Resistance | I/P-O/P:100M Ohms (500VDC/25°C/70%RH) |
| | EMC Emission | Conducted Emission: FCC PART 15 Class A,<br>Radiated Emission: FCC PART 15 Class A |
| | EMC Immunity | EN61000-4-2,3,4,5,6,8,11; EN61000-4-5: Line to Neutral: ±6kV ;<br>Line to GND: ±6kV; Neutral to GND: ±6kV. IEEE / ANSI C62.41.2 Transient Surge Requirements, combi wave 2 ohm source impedance. |
| **Others** | MTBF | 300,000 hours, measured at full load, +25 °C ambient temperature<br>MIL-HDBK-217F (+25 °C) |
| | Lifetime | Refer to plot. |
| | Dimension | 102 x 80 x 43 mm (LxWxH); (4.02 x 3.15 x 1.69 inches) |
| | Weight (Typ.) | 710 g (1.57 lb) |

*① All parameters NOT specially mentioned are measured at 480 Vac input, rated load and 25°C of ambient temperature*
*② Measured at full load and steady-state temperature in +25 °C ambient (Efficiency will be about 2% lower if measured immediately after startup)*