杭州中恒派威电源有限公司
Hangzhou Zhongheng Power Energy Co., Ltd
www.hzzhpower.com

ZHONGHENG POWER ENERGY PRODUCT APPROVAL SPECIFICATION

中恒派威电源产品承认书

MODEL NO.（产品型号）	PE-F180CC-C175-S-DM
CUSTOMER（客户）	Partech LED Ltd
CUSTOMER P.N.（客户料号）	
SAMPLE DATE（送样日期）	

客户方承认签核 CUSTOMER AUTHORIZED SIGNATURE		
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Revision History
变更履历

Version	Date	C/N No.	Author	Description
VA.0	Nov.15,2016		Qiyh	First Release
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1. Introduction/产品介绍

1.1 Scope/概述

This specification is for customer approval. It defines the detailed specification of Hangzhou Zhongheng Power Energy Co., Ltd LED driver product. It will be a formal document for customer and Hangzhou Zhongheng Power Energy Co., Ltd for the specified product.

该规格书为客户承认用。该文档定义了杭州中恒派威电源有限公司 LED 驱动产品的规格。该文档将作为杭州中恒派威电源有限公司与客户之间关于指定产品型号的正式文档。

1.2 References/参考文件

[1] Hangzhou Zhongheng Power Energy Co., Ltd Product Family Specification/中恒派威电源产品手册

2. Approvals and Standards/认证及标准

2.1 Compliance Standards/标准规范

Section	Parameter/参数	Specification/规格	Comments/备注
2.1.1	UL and FCC	UL8750,UL935,UL1012, UL1310	
2.1.2	CE	EN61347-1,EN61347-2-13, EN62384	
2.1.3	CCC	GB19510.1	

2.2 Emissions(EMI)/传导及辐射

Section	Parameter	Specification	Comments
2.2.1	Radiated Emissions/辐射	Class B	FCC Part 15,EN55015
2.2.2	AC Conducted Emissions/传导	Class B	FCC Part 15,EN55015
2.2.3	Harmonics/谐波	Class C (≥75% load)	EN61000-3-2
2.2.4	Voltage Fluctuations &Flicker/电压波动和闪变		EN 61000-3-3

2.3 Immunity(EMS)/抗扰度

Section	Parameter	Specification	Comments
2.3.1	Surge – AC port/浪涌	L-N:4kV; LN-PE:6kV	EN 61000-4-5
2.3.2	ESD	Contact 4kV,Air 8kV	EN 61000-4-2
2.3.3	RFF	10V/m	EN 61000-4-3
2.3.4	EFT	2kV	EN 61000-4-4
2.3.5	CRF	10V	EN 61000-4-6
2.3.6	Power Frequency Magnetic Field Test/工频磁场抗扰度试验		EN 61000-4-8
2.3.7	Voltage Dips/电压跌落		EN 61000-4-11
2.3.8	Hi-pot		EN/IEC 61347

2.4 Insulation/绝缘

Section	Parameter	Specification	Comments
2.4.1	Primary-to-Ground/原边对大地	Basic insulation/基本绝缘	
2.4.2	Secondary-to-Ground/副边对大地	Basic insulation/基本绝缘	
2.4.3	Primary-to-Secondary/原边对副边	Reinforced insulation/加强绝缘	

2.5 Dielectric Strength (Hi-POT)/耐压强度（高压）

Section	Parameter	Specification	Comments
2.5.1	Input-to-Output (输入-输出)	3750Vac/10mA/60s	
2.5.2	Input-Ground （输入-地）	1554Vac/5mA/60s	
2.5.3	Output- Ground （输出-地）	1554Vac/10mA/60s	

2.6 Leakage Current/漏电流

Section	Parameter	Specification	Condition
2.6.1	Leakage Current/漏电流	1mA max.	277Vac/60Hz

2.7 Ground Resistance/接地阻抗

Section	Parameter	Specification	Condition
2.7.1	Ground Resistance/接地阻抗	0.1Ω max.	32A, 3s

3. General Requirements/基本规格

3.1 Environmental Conditions/环境条件

Section	Parameter	Specification	Comments
3.1.1	Maximum Case Temperature/最大壳温	90°C	
3.1.2	Working Ambient Temperature Range/工作环境温度范围	-40°C to +70°C	Derating will apply for 60°C to 70°C/60-70°C 降额输出
3.1.3	Start-up Temperature/启动温度	-40°C	
3.1.4	Maximum Altitude for Normal Operation/海拔高度	3000m	Derating will apply above 2000m/海拔 2km 以上降额输出
3.1.5	Storage /储藏	-40°C to +85°C	
3.1.6	Transport/运输	-40°C to +70°C	
3.1.7	IP Rating/IP 等级	IP67	
3.1.8	Operating Humidity/工作环境湿度	10～100% RH	
3.1.9	Storage Humidity/储藏环境湿度	5～100% RH	

3.2 Reliability and Life/可靠性及寿命

Section	Parameter	Specification	Comments
3.2.1	MTBF (Calculated) /平均无故障间隔时间理论值	320,000hrs	Calculated by MIL-HDBK-217F. Measured at 230Vac input, 80% load and 25℃ ambient temperature. 25℃环境及230Vac输入与80%负载条件下测试
3.2.2	Product Life/产品寿命	55,000 hours design life. /5.5 万小时设计寿命	Measured at 230Vac input, 80% load and 75℃ case temperature. 75℃壳温及 230Vac 输入与 80%负载条件下测试
3.2.3	Maintenance & Repair/维修	Non field serviceable/不可现场维修	

3.3 Dynamic Performance/动态特性

All measurements must be taken at the product wiring. Unless otherwise stated, all measurements are conducted at nominal output voltage and current with nominal input voltage. Steady state is considered to be less than or equal to 0.5% deviation from nominal output current.

所有测试必须在产品线路连接良好前提下，除非特别注明，所有测试均在标称输入电压、标称输出电压及电流条件下进行，输出电流在 0.5%偏差内为稳态。

Section	Parameter	Specification	Condition	Comment
3.3.1	Load Regulation 负载调整率	±1% Io-rated	Measured over 60% to 100% rated output load at rated output current. 输出额定电流条件下，额定功率 60 - 100%变化	
3.3.2	Line Regulation 线性调整率	±1% Io-rated	Measured over full rated input voltage range 输入电压全范围测量	
3.3.3	Start-up Overshoot 开机过冲	<10% Io-rated	Full rated load 额定满负载	The deviation is compared to the final steady state value 偏差值与稳定工作状态下比较得出

3.4 Mechanical Construction/机械结构

Section	Parameter	Specification	Comments
3.4.1	Dimensions 产品尺寸	221×67.5×37.5mm	L×W×H
3.4.2	RoHS & WEEE	Full compliance on launch 完全遵循	
3.4.3	Connector/Wiring 接线	See Mechanical Drawings 参见结构图	
3.4.4	Weight/重量	约 940g	Extra cable excluded 不包含接电源端外线材
3.4.5	Cooling/散热	Natural cooling/自然冷却	
3.4.6	Mounting/安装	6PCS mounting holes for screw 6 颗螺钉安装孔	Refer to mechanical drawings 参见结构图

4. AC Input/交流输入

4.1 Ratings/额定参数

Section	Parameter	Specification	Comments
4.1.1	Rated Input Voltage Range 额定输入电压范围	200~277Vac	Nominal voltage, Single phase, Universal input /标称电压，单相，全电压输入
4.1.2	Rated Input Current 额定输入电流	1.1A_{rms}	Full rated load, input voltage 220Vac and 25°C/标称输入电压 220Vac，25°C 满载测试
4.1.3	Rated Input Frequency Range 额定输入频率	50~60Hz ±10%	

4.2 Input Voltage Specifications/输入电压规格

Section	Parameter	Specification	Comments
4.2.1	Nominal Input Voltage 标称输入电压	220V_{rms}	
4.2.2	Normal operating range 正常工作范围	176~305V_{rms}	Temperature/Voltage de-ratings apply, see Performance curves. 温度或电压允许降额，见性能曲线图。
4.2.3	Turn On Delay Time 开机延迟时间	<1.2s	At rated input voltage and full load 额定输入电压及满载下测试

4.3 Input Current/输入电流

Section	Parameter	Specification	Comments
4.3.1	Inrush current （peak） 突入电流(峰值)	65A Typical	At nominal input voltage and room temperature, inrush spike due to EMC capacitors is excluded.(duration time from 10%Ipk (rise) to 10%Ipk (fall) is less 5ms) 在标称电压及室温下测得,且不包括 X 电容引起的尖峰，持续时间小于 5ms。
4.3.2	Inrush current （I^2t） 突入电流(能量)	<5.0A^2s	At 220Vac input voltage and room temperature (cold start), duration time from 10%Ipk (rise) to 10%Ipk (fall). 220Vac, 25℃环温（冷机启动），持续时间 10%Ipk↑-10%Ipk↓
4.3.3	Power Factor 功率因数	>0.96	@ 220Vac, full load
		>0.90	@ 277Vac, full load
4.3.4	THD 总谐波失真	<20%	@ 220Vac, full load
		<20%	@ 277Vac, full load

4.4 Input Protection/输入保护

Section	Parameter	Specification	Comments
4.4.1	Over Current 输入过电流		Input fuses fitted on line inputs for fault protection 在输入线上加装保险丝实现过电流保护
4.4.2	Over Voltage 输入过压	330V_{rms}/60s	No damage./无损伤

5. DC Output/直流输出

5.1 Output Voltage Specifications/输出电压规格

Section	Parameter	Specification	Comments
5.1.1	Maximum Rated Voltage 最大额定电压	116V	No load output voltage, typical. / 空载输出电压，典型值。
5.1.2	Nominal Output Voltage Range 标称输出电压范围	62V –103V	Output load from 60% to 100%. 输出 60%到 100%负载电压。
5.1.3	Rated Output Current 额定输出电流	1750mA （±5%）	Defined as “Io-rated” /定义为 Io-rated。
5.1.4	Rated Output Power 额定输出功率	180W	
5.1.5	Efficiency/效率	91.5% @ 220Vac, full load	Typical value. 100% of rate output power at nominal input voltage, after the unit is thermally stabilized. 典型值。在标称输入电压下，100%额定输出功率，热机测试状态下测试。
5.1.6	Output Ripple and Noise (Peak to Peak) 输出纹波和噪声(峰-峰值)	<5%Io-rated	At rated output current, measured at 20MHz bandwidth and the output is paralleled with a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor 在额定电流下测试，示波器带宽 20MHz,输出端并联一个 0.1uF 陶瓷电容及一个 10uF 的电解电容下测试。

5.2 Output Protection/输出保护

Section	Parameter	Specification	Comments
5.2.1	Over Voltage Protection (OVP)	<155V	The unit will be in burst mode when OVP. It will deliver full function after fault is removed. 过压时工作在打嗝模式,故障解除后，产品恢复正常工作。
5.2.2	Output Short Circuit Protection 输出短路保护	Self Protected	During output short circuit, the product will be in self protection mode and will not be damaged. After the fault is removed, the product will deliver output power as normal. 短路时，产品无损伤。短路解除后，可自动恢复。
5.2.3	Over Power Protection 过功率保护		The output power can be limited if the load exceed rated output load. 如果负载超过额定输出负载，输出功率会被限制。
5.2.4	Over Temperature Protection 过温保护(OTP)	100±10°C Case Temperature	The power supply shall go into thermal protection as the case temperature exceeds 100±10°C. Output current will reduce to 20%-50%Io-rated when OTP and will recover when Tc dropped to 70±10°C. 电源壳温超过 100±10°C 时会启动过温保护，过温时输出电流降至 20%-50%Io-rated，壳温降至 70±10°C 时恢复正常。

6. Dimming /调光

6.1 Analogue dimming/模拟调光

Section	Parameter	Specification	Comments
6.1.1	Trimming potentiometer 微调电位器	100KΩ	
6.1.2	Dimming Percentage Range 调光百分比	10%-100%	See to 7.3 Dimming Curve.

7. Performance Curves/性能曲线

7.1 Input Voltage Derating/输入电压降额曲线

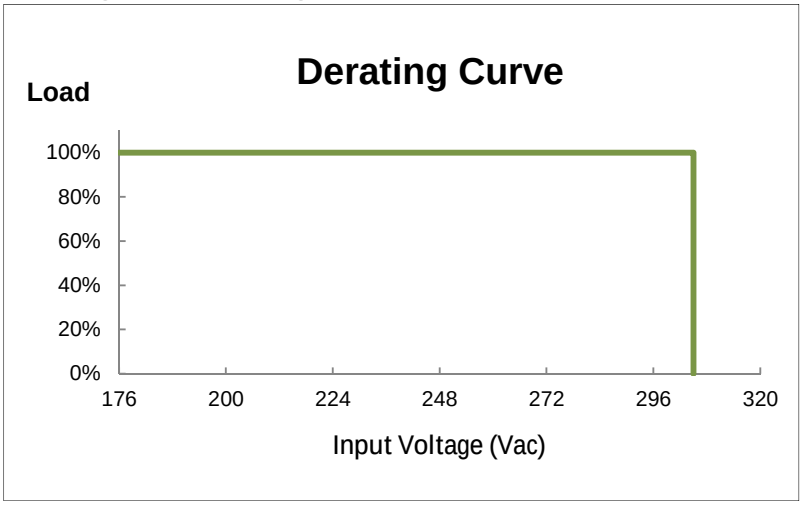

Figure 1. Input Voltage De-rating

7.2 Thermal Derating/温度降额

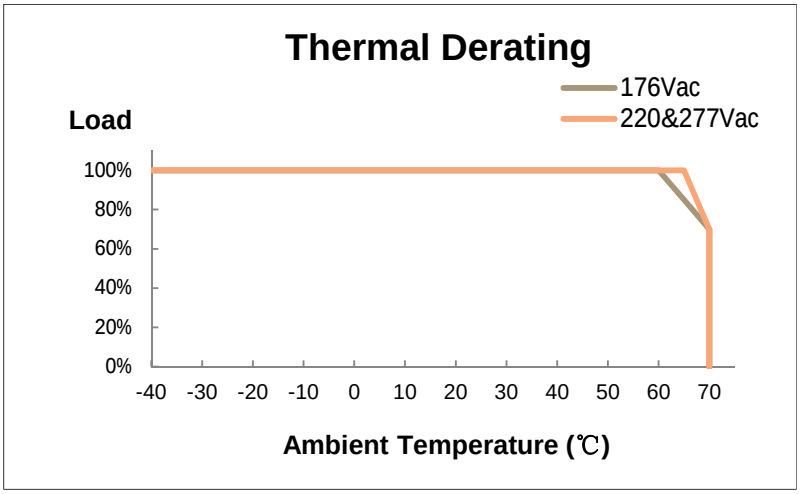

Figure 2. Temperature Derating of Output

7.3 Dimming/调光

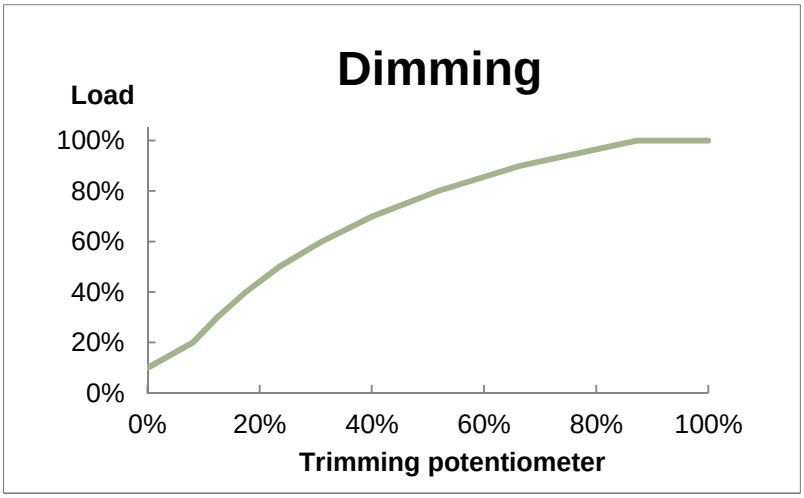

Figure 3. Output Current versus Dimming

8. Mechanical Drawings/机构图

8.1 Product Outline/产品外观尺寸

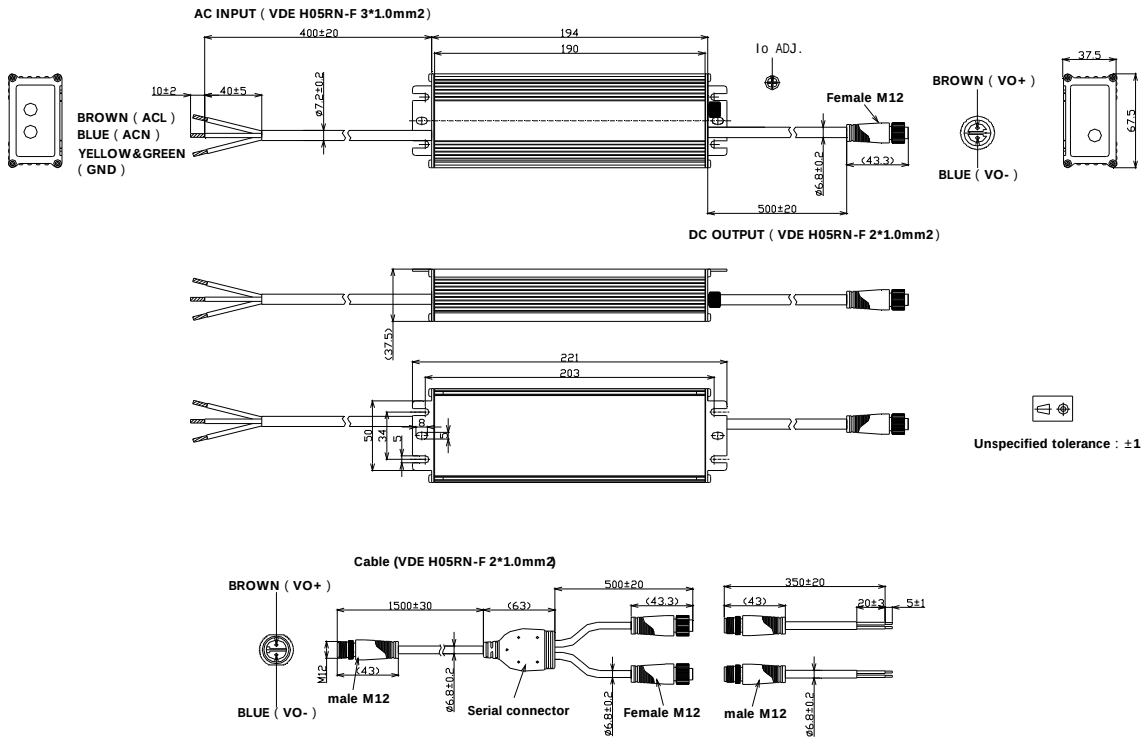

Figure 4. Mechanical Drawing of Outline

8.2 Label/产品标贴

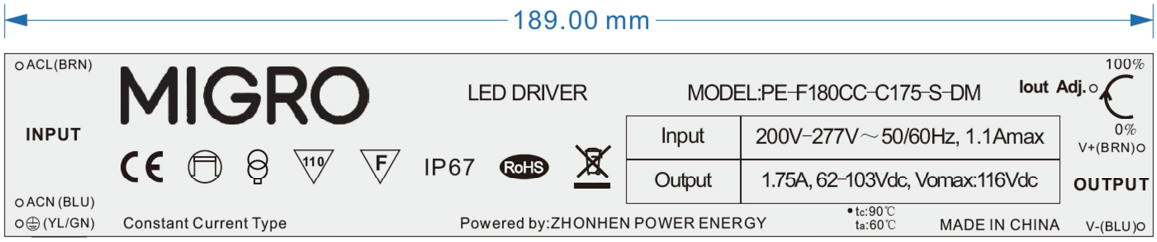

Figure 5. Label

8.3 Package/包装

外箱尺寸 Carton Dimension(L×W×H）:500*320*315 mm

纸浆托盘 Moulded Pulp Egg Tray：4 PCS per carton

盖板 Pulp Plate：4 PCS per carton

LED 电源 LED Driver：20PCS per carton

Figure 6. Packing Sample