200PHL Series Specification

200PHL系列规格书

V1.4

2025/4/9

Powerland Signatures						
Prepared	Checked			Approved	Marketing	CPO
	Mechanical Engineer	Safety Engineer	R&D Manager			

Please return us one copy of the document with your approval signature.

请客户确认签字后回传我司此规格承认书。

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Features

- Programmable constant current and voltage output
- High efficiency: 94% typical @220Vac, full load
- High power factor: 0.98 typical. @ 220Vac, full load
- Isolated 0-10V/PWM/ Resistor Dimming
- With Lightning Protection & all-round protections
- 6kV/10kV surge capability

Description

This specification describes the performance characteristics of a 200W versatile power supply for LED Driver.
The output current of this series are programmable, and designed for 0-10V/PWM/Resistor dimming applications.

Model Name Definition

200	PHL	60	CV	-	XX	X	-	XXX
Rated Output Power	Series name	Maximum output voltage	Constant current and constant voltage output		Options: 1. D0 2. D1	Options: 1. U(UL Wire) 2. V(VDE&CCC Wire) 3. Blank(UL&VDE&CCC Wire)		Options

Specifications

Part Number	Max. Output Power	Programmable Current Range	Output Voltage Range	Efficiency(typical) @220VAC	Dimming	AUX power
200PHL60CV-D0	200W	1.90-4.76A	30-60V	94%	0-10V	12V 200mA
200PHL60CV-D1	200W	1.90-4.76A	30-60V	94%	1-10V	/
200PHL180CV-D0	200W	0.67-1.67A	90-180V	94%	0-10V	12V 200mA
200PHL180CV-D1	200W	0.67-1.67A	90-180V	94%	1-10V	/
200PHL240CV-D0	200W	0.48-1.1A	120-240V	94%	0-10V	12V 200mA
200PHL240CV-D1	200W	0.48-1.1A	120-240V	94%	1-10V	/

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Rated Input AC Voltage	100 Vac	-	277Vac	
Limit Input AC Voltage	90Vac	-	305Vac	
Input Frequency	47 Hz	50/60 Hz	63 Hz	
Leakage Current	-	-	0.75 mA	At 220Vac / 50Hz input , grounding effectively
Input AC Current	-	-	1.07A	Measured at full load and 220 Vac input.
Inrush Peak Current	-	-	125A	At 220Vac input, 25°C cold start.
PF	0.95	-	-	At 220Vac, 80%-100% load, 25°C and 60Hz

THD	-	-	15%	At 220Vac, 80%-100% load, 25°C and 60Hz
Efficiency	93%	94%	-	Measured at 220Vac input、100% load and steady-state temperature in 25°C ambient

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io set	-	5%Io set	At 25°C and full load condition
Total Output Current Ripple (pk-pk)	-	-	15%Io max	At 25°C and full load condition, 8kHz BW
Startup Overshoot Current	-	-	20%Io max	At 25°C and full load condition, 8kHz BW
No Load Output Voltage	-	-	66V	200PHL60CV
	-	-	220V	200PHL180CV
	-	-	270V	200PHL240CV
Line Regulation	-	-	±3%	Measured at 25°C and full load
Load Regulation	-	-	±3%	At 25°C condition
Turn-on Delay Time	-	-	2.0 s	Measured at 220Vac input.
Temperature Coefficient of Io set	-0.05%/°C	-	0.05%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage(200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0)	11V	12 V	15 V	
12V Auxiliary Output Source Current(200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0)	0 mA	-	200 mA	Return terminal is “Dim−“
OTP Tc	85°C	90°C	95°C	Output current will drop to 50% lowest, or shut down.
SCP				Hiccup mode, Auto recover
OPP				Auto recover
OCP				Auto recover

General Specifications

Parameter	Min.	Typ.	Max.	Notes
MTBF	234,000 Hours	-	-	Measured at 220Vac input, 80%load and 25° C ambient temperature (MIL-HDBK-217F)
Lifetime	50,000 Hours	-	-	Measured at 220Vac input, 100%load and 75° C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	90°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	80°C	
Operating Ambient Temperature	-40°C	-	60°C	At 220-277Vac input.

Ta				
Storage Temperature	-40°C	-	85°C	Humidity: 5%RH to 90%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	6.32×2.09×1.42 in 160.4×53×36mm			

Note1:There are two points could be maximum Tc point, depending on different Vac input and Vdc output.These two points(Tc,Tc1) position are shown in below mechanical drawing.

Dimming Specifications

1. 0-10V Dimming(200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0)

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-1 V	-	15 V	
Source Current on Vdim (+)Pin	90uA	100uA	110uA	
Dimming Output Range	-	10%Io set	Io set	80%Io max ≤ Io set ≤ 100%Io max
	-	8%Io max	Io set	Io set ＜80%Io max
Recommended Dimming Input Range	0V	-	10 V	Default 0-10V dimming mode.
Dim off Voltage	0.3 V	0.5 V	0.8V	
Dim on Voltage	0.5V	0.7 V	1 V	
Hysteresis	-	0.2 V	-	
PWM_in High Level	9.5 V	10V	10.5 V	
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	500 Hz	-	3 KHz	
PWM_in Duty Cycle	1%	-	100%	
PWM Dimming off	3%	5%	7%	
PWM Dimming on	5%	7%	9%	

2. 1-10V Dimming(200PHL60CV-D1/200PHL180CV-D1/200PHL240CV-D1)

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-1 V	-	15 V	
Source Current on Vdim (+)Pin	90uA	100uA	110uA	
Dimming Output Range	-	10%Io set	Io set	80%Io max ≤ Io set ≤ 100%Io max
	-	8%Io max	Io set	Io set ＜80%Io max
Recommended Dimming Input Range	1V	-	10 V	Default 1-10V dimming mode.
PWM_in High Level	9.5 V	10V	10.5 V	
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	500 Hz	-	3 KHz	
PWM_in Duty Cycle	1%	-	100%	

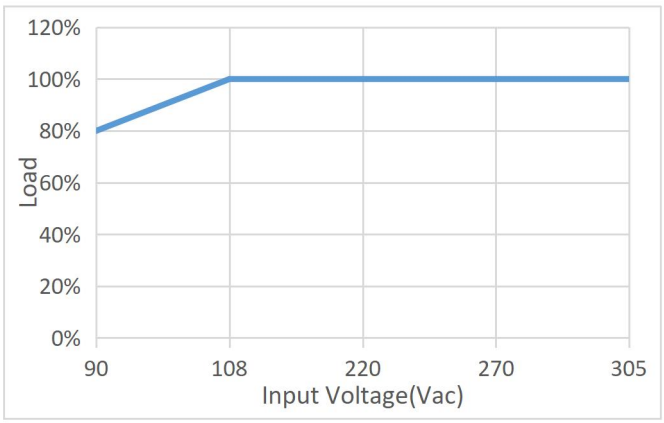
Safety &EMC Compliance

Safety Category	Standard
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13-12
Dielectric Strength(Hi-pot)	Primary to Secondary:3108Vac / 10mAMax
	Primary to Earth: 1554Vac 10mA max.
	Secondary to Earth: 500Vac 10mA max(200PHL60CV). 1440Vac 10mA max(200PHL180CV). 1540Vac 10mA max(200PHL240CV).
	Dimming to Output: 500Vac 10mA max(200PHL60CV). 1440Vac 10mA max(200PHL180CV). 1540Vac 10mA max(200PHL240CV).
Insulation Resistance	50Mohm min.@ primary to secondary add 500Vdc test voltage
Grounded Resistance	0.1Ω max. @ 25A, 1 minute
ENEC&CE	EN61347-1, EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
CCC	GB19510.1, GB19510.14
EMI Standards	Notes
EN55015	Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired Operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge, Criteria A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS, Criteria A
EN 61000-4-4	Electrical Fast Transient / Burst-EFT: level 3, Criteria B
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 6kV, line to earth 10kV, Criteria B
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS, Criteria A
EN 61000-4-8	Power Frequency Magnetic Field Test, Criteria A
EN 61000-4-11	Voltage Dips, Criteria B
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

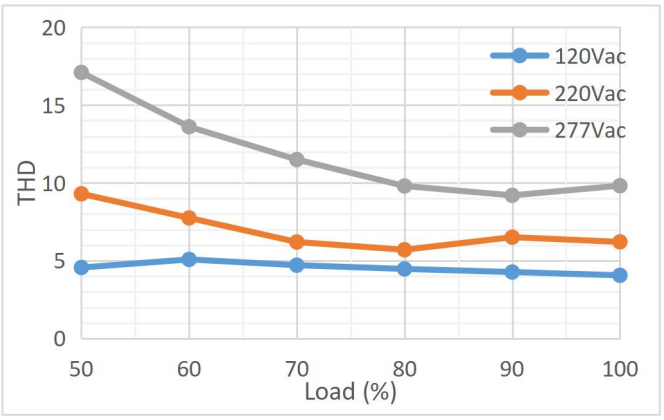
Note2：This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Performance Curve

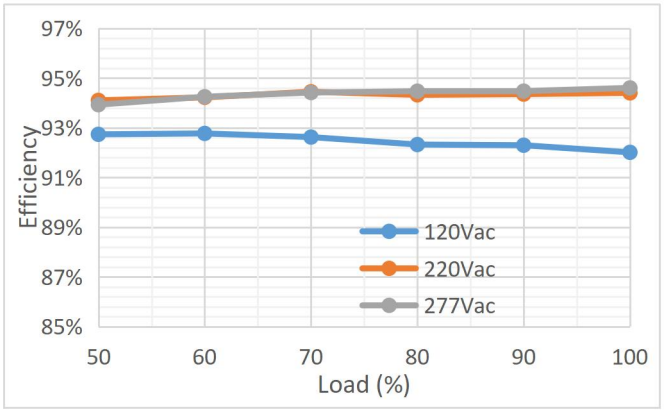
Input Voltage Derating Curve



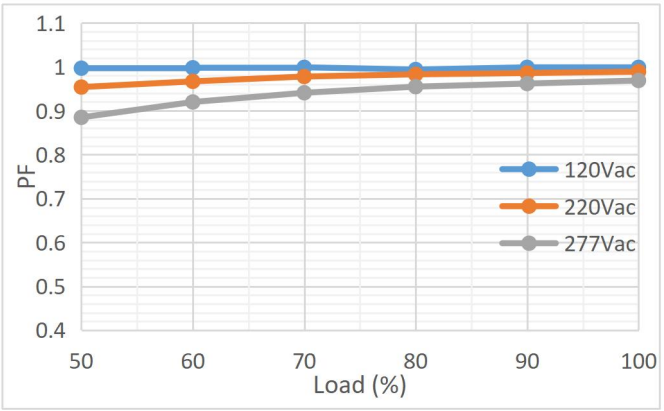
200PHL180CV Total Harmonics Vs Different Loads



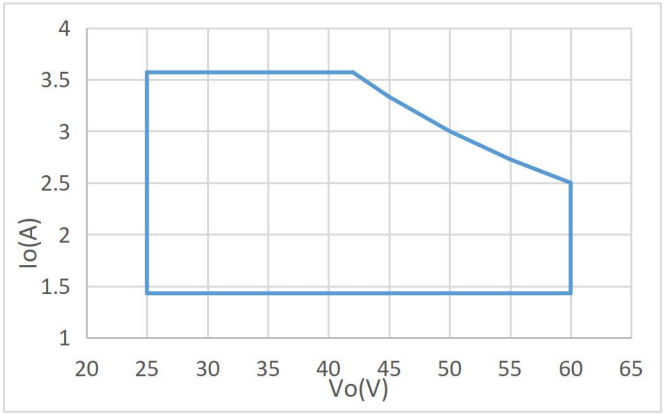
200PHL180CV Efficiency Vs Different Loads



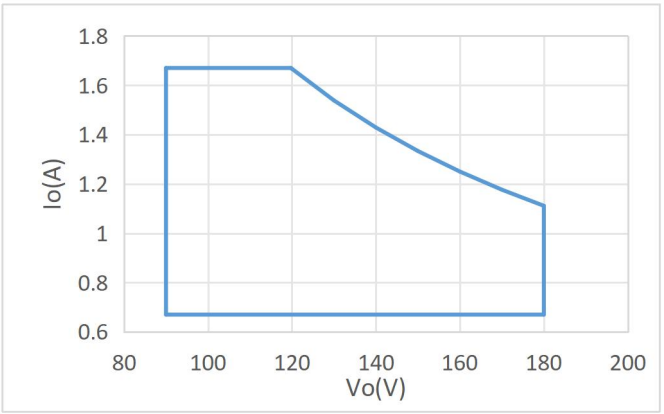
200PHL180CV Power Factor Vs Different Loads



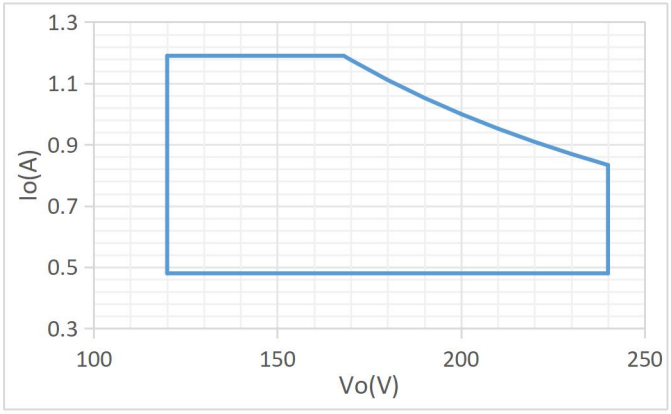
200PHL60CV I/V Operating Area



200PHL180CV I/V Operating Area

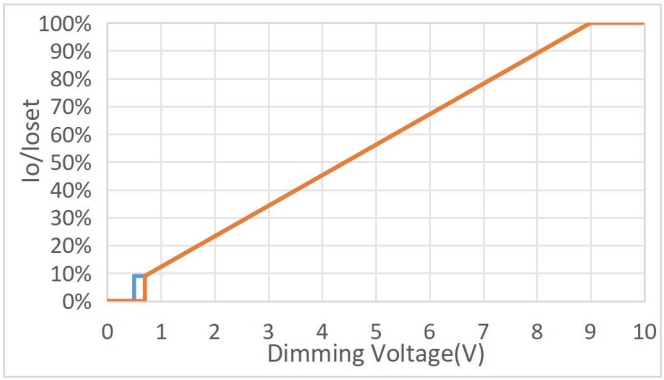


200PHL240CV I/V Operating Area

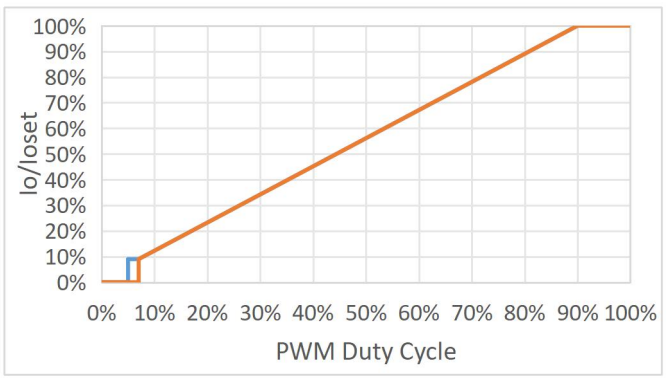


Dimming Curve

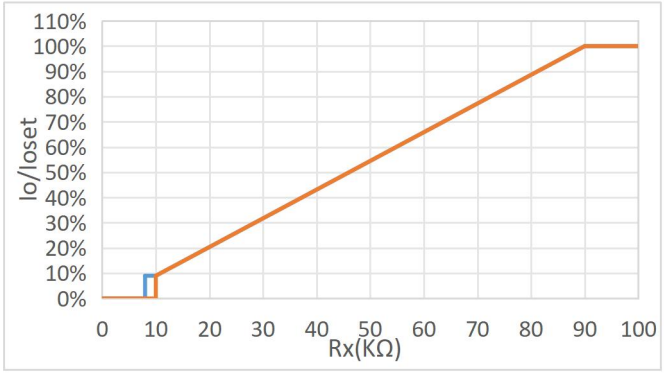
200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0 Io/Ir vs Dimming Voltage



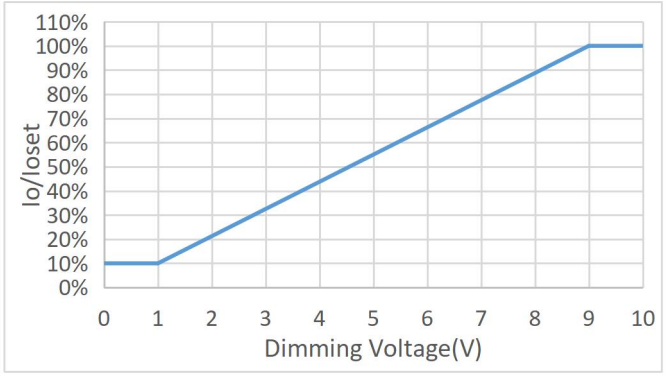
200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0 Io/Ir vs PWM Duty Cycle



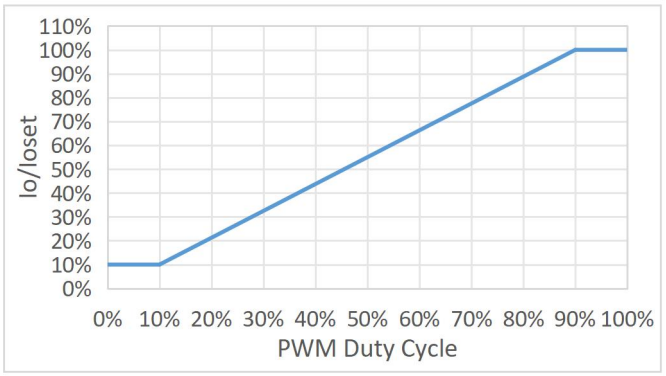
200PHL60CV-D0/200PHL180CV-D0/200PHL240CV-D0 Io/Ioset vs Rx



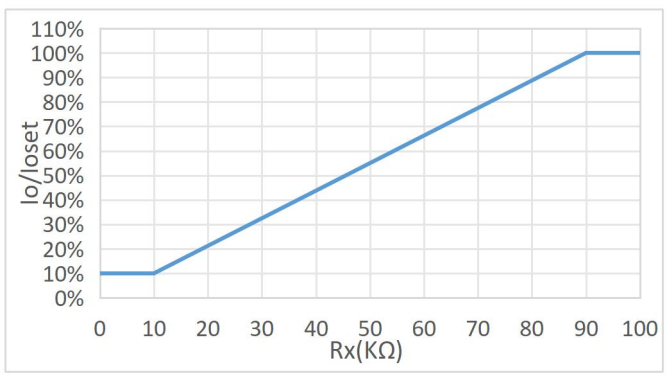
200PHL60CV-D1/200PHL180CV-D1/200PHL240CV-D1 Io/Ioset vs Dimming Voltage



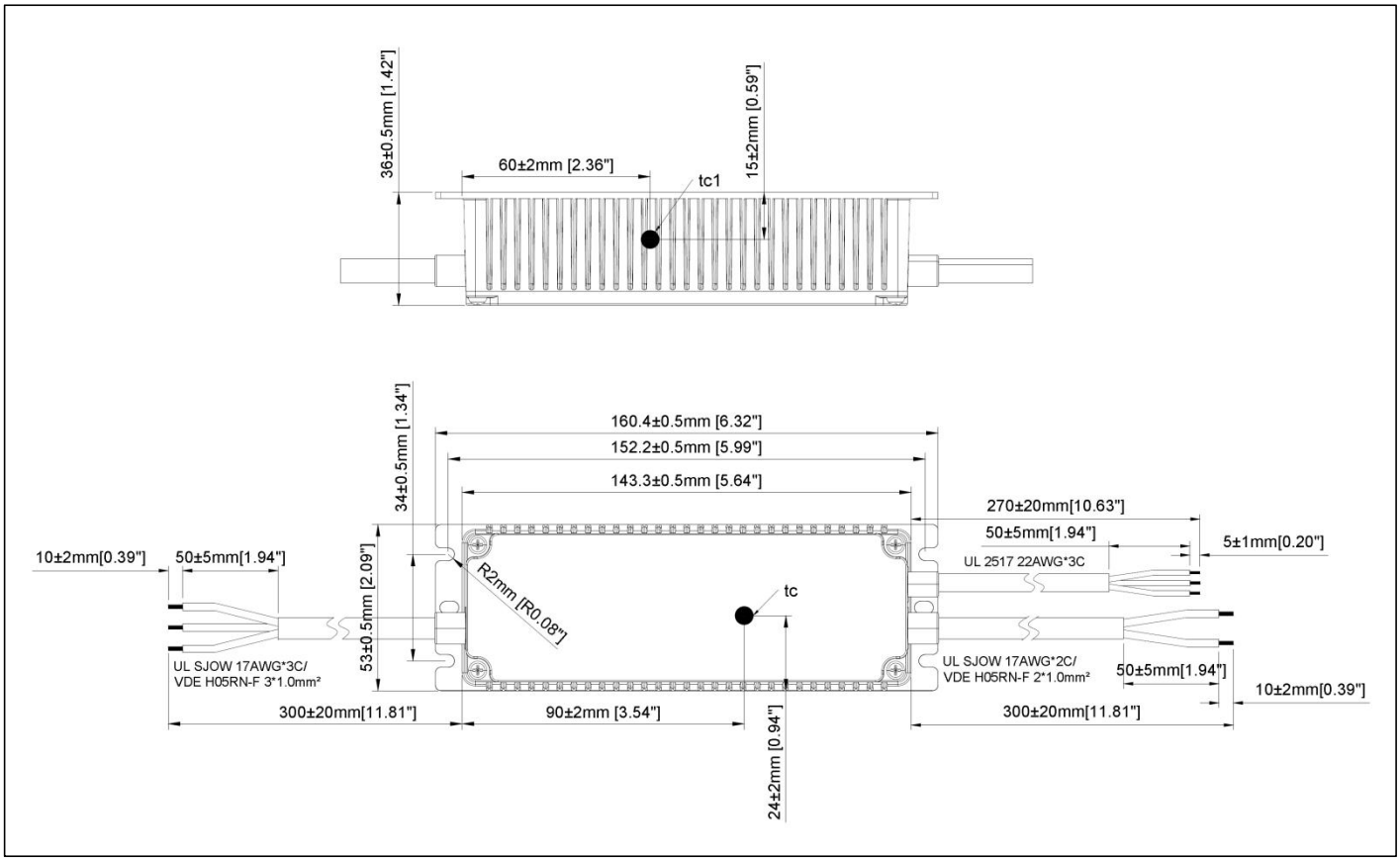
200PHL60CV-D1/200PHL180CV-D1/200PHL240CV-D1 Io/Ioset vs PWM Duty Cycle



200PHL60CV-D1/200PHL180CV-D1/200PHL240CV-D1 Io/Ioset vs Rx



Mechanical Drawing



Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2023.10.10	V1.0			
2024/5/16	V1.1	Add 200PHL180CV-D0/D1/DA		
		Update Performance Curve		
		Update Mechanical Drawing		
2024/6/20	V1.2	Update Model Name Definition		
		Operating Ambient Temperature Ta	Max：50°C	Max ： 60°C(At 220-277Vac input.)
		Programmable Current Range:200PHL180CV	0.44-1.11A	0.67-1.67A
		Update 200PHL180CV I/V Operating Area		
2024/9/11	V1.3	Delete 200PHL60CV-DA/200PHL180CV-DA/200PHL240CV-DA		
2025/4/9	V1.4	Input AC Current	Typ：1.0A	Max：1.07A
		PF/THD		Add 25°C and 60Hz
		Input Specifications		Add Efficiency
		Total Output Current Ripple (pk-pk	At 25°C and full load condition, 200Hz BW	At 25°C and full load condition, 8kHz BW
		Startup Overshoot Current	Max：10%Io max(At 25°C and full load condition)	Max：20%Io max(At 25°C and full load condition, 8kHz BW)
		Line Regulation/Load Regulation		Add 25° C
		Lifetime	Measured at 220Vac input, 80% load and 75 ° C case temperature; See lifetime vs. Tc curve for the details	Measured at 220Vac input, 100% load and 75 ° C case temperature; See lifetime vs. Tc curve for the details
		Dimming Output Range	Min：10%Io set Min：8%Io max	Typ.：10%Io set Typ.：8%Io max
		Dielectric Strength(Hi-pot)	Primary to Secondary:3000Vac / 10mAMax	Primary to Secondary:3108Vac / 10mAMax
			Primary to Earth: 2000Vac 10mA max.	Primary to Earth: 1554Vac 10mA max.
			Secondary to Earth: 500Vac 10mA max.	Secondary to Earth: 500Vac 10mA max(200PHL60CV). 1440Vac 10mA max(200PHL180CV). 1540Vac 10mA max(200PHL240CV).
			Dimming to Secondary: 2000Vac 10mA max.	Dimming to Output: 500Vac 10mA max(200PHL60CV). 1440Vac 10mA

				max(200PHL180CV). 1540Vac 10mA max(200PHL240CV).
		EMS Standards		Add criteria
		Update dimming curve		
		Update Mechanical Drawing		