

720GTL series Specification

720GTL系列规格书

V1.4

2024/1/2

Powerland Signatures					Customer Approval Signature
Prepared	Checked		Approved	Marketing	
	ME	研发经理			

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Powerland Technology Inc.

南京博兰得电子科技有限公司

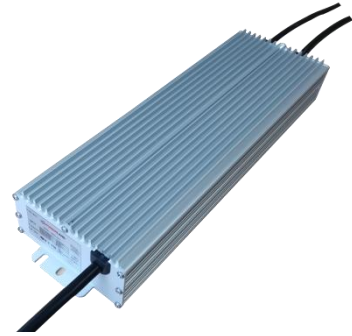
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Features

- Dimming port programming without driver power on
- CC/CV hybrid output
- High efficiency (Max 95%), active power factor correction
- Ultra low THD at light load
- Isolated 0~10V/ PWM/Rset dimming, Dim to off option
- 12V/200mA AUX Output
- UL listed with Class P
- IP65



Description

720W LED Drivers offers digital programmable drivers with wide-range adjustable output current, together with 12V/200mA auxiliary output (optional) for smart lighting.

The output current of this series are programmable, and designed for 0-10V/PWM/Rset dimming applications.

Model Name Definition

720	GTL	56	CV	(G)
Rated Output Power	Series name	Maximum output voltage	Constant current and constant voltage output	Options: Output with FG line

Specifications

Part Number	Max. Output Power	Programmable Current Region@CC	Output Voltage Range	Programmable Voltage Region@CV	Efficiency @277VAC
720GTL48CV(G)	720W	7.02-17.56A	25-48V	42-48 V	95%
720GTL56CV(G)	720W	6.00-15.00A	28-56V	48-56 V	95%
720GTL80CV(G)	720W	4.24-10.59A	38-80V	64-80 V	95%
720GTL140CV(G)	720W	2.42-6.05A	67-140V	112-140V	95%
720GTL180CV(G)	720W	1.88-4.71A	84-180V	140-180 V	95%
720GTL240CV(G)	720W	1.41-3.53A	115-240V	192-240 V	95%
720GTL300CV(G)	720W	1.13-2.82A	144-300V	240-300V	95%
720GTL375CV(G)	720W	0.9-2.26A	180-375V	300-375V	95%
720GTL460CV(G)	720W	0.74-1.84A	225-460V	375-460V	95%

Note: Efficiency value is typical value.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	120Vac	-	277Vac	
Limit Input AC Voltage	90Vac	-	305Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac / 60Hz input , grounding effectively
Input AC Current	-	-	3A	Measured at full load and 277 Vac input.
	-	-	6.65A	Measured at full load and 120 Vac input.
Inrush Current	-	-	65A	At 220Vac input, 25°C cold start.
PF	0.9	-	-	At 100-277Vac, full load
THD	-	-	20%	

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)	-	-	10%Io max	At 25°C and full load condition, 20 MHz BW
Startup Overshoot Current	-	-	20%Io max	At 25°C and full load condition
No Load Output Voltage	-	57V	-	720GTL56CV(G) only
Line Regulation	-	-	±1%	Measured at full load
Load Regulation	-	-	±1%	
Turn-on Delay Time	-	0.8 s	1.5 s	Measured at 120Vac input.
Temperature Coefficient of Io set	-0.03%/°C	-	0.03%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	11V	12 V	15 V	
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is "Dim-"
OTP Tc(Note1)	85°C	90°C	100°C	Output current will drop to 50% lowest, or shut down.
SCP				Hiccup mode, Auto recover

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	-	1.5 W	Measured at 220Vac/50Hz; Dimming off
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, 80%Load and 75°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature Tc(Note1)	-40°C	-	90°C	
Operating Ambient Temperature Ta	-40°C	-	50°C	At 176-305Vac input, Other voltage Ta 40°C max.
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH
Dimensions	13.23 × 3.89 × 1.81			

Inches (L × W × H)	336 × 98.8 × 46.1			
Millimeters (L × W × H)				
Net Weight/pcs	-	2.7kg	-	
Package	L382 x W277 x H141			
	4PCS/Ctn			

Note1: There are three points could be maximum Tc point, depending on different Vac input and Vdc output. These three points (Tc, Tc1, Tc2) position are shown in below mechanical drawing.

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-1 V	-	15 V	
Source Current on Vdim (+) Pin	90 uA	100 uA	110 uA	
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	0 V	-	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	9.8 V	10V	10.2 V	PWM is disabled default, please inform us if need this function enable.
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	200 Hz	-	3 KHz	
PWM_in Duty Cycle	1%	-	100%	
PWM Dimming off	3%	5%	7%	
PWM Dimming on	5%	7%	9%	

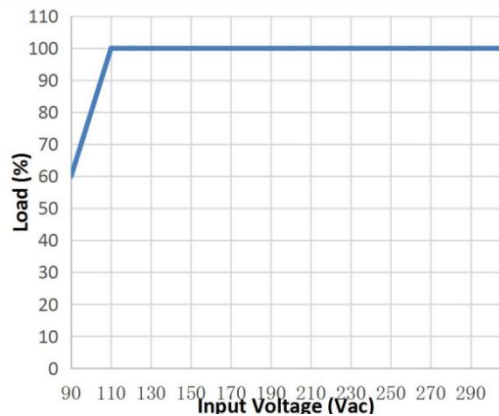
Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, CAN/CSA-C22.2 No. 250.13-12
EMI Standards	Notes
FCC Part 15	ANSI C63.4:2009 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 4 kV, line to earth 6 kV, 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

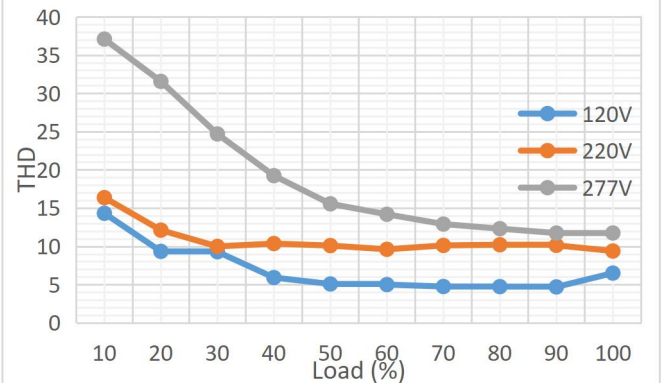
EN 61000-4-11	Voltage Dips, Criteria B
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Performance Curve

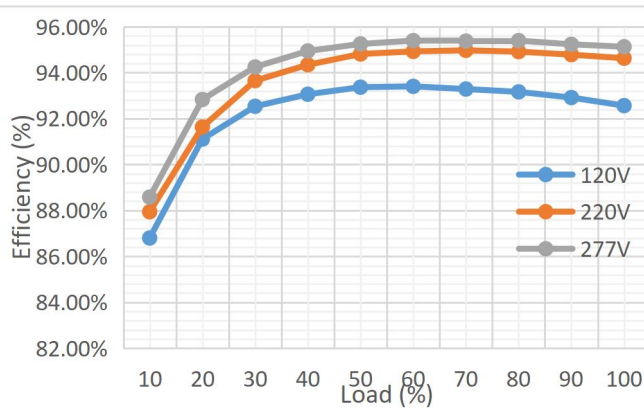
Input Voltage Derating Curve



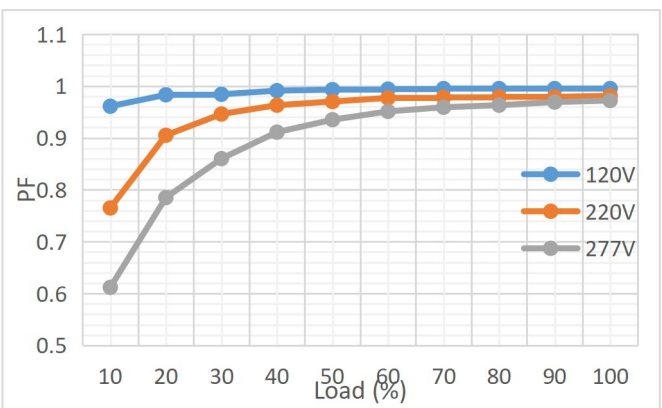
Total Harmonics Vs Different Loads



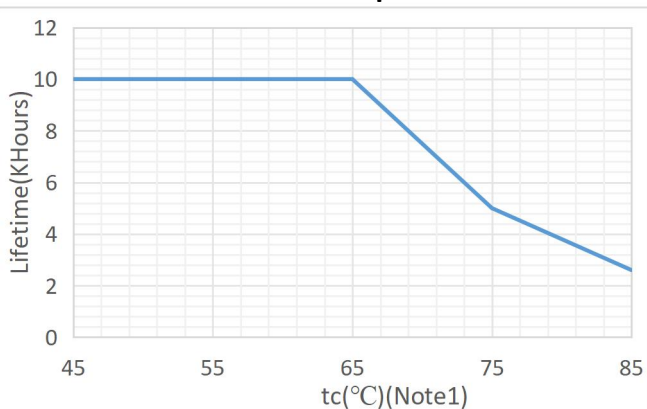
Efficiency Vs Different Loads



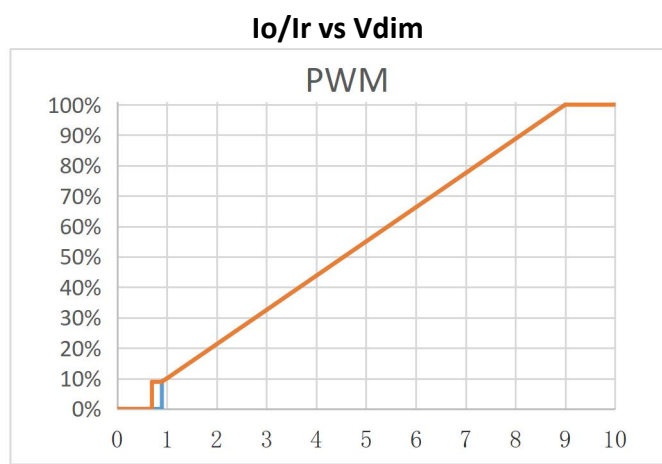
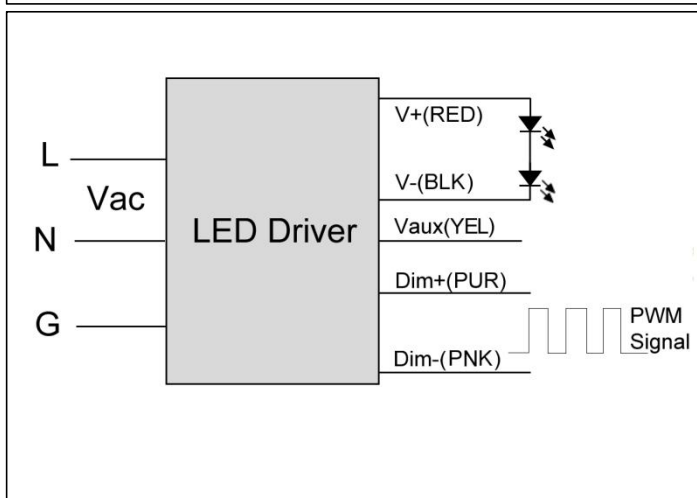
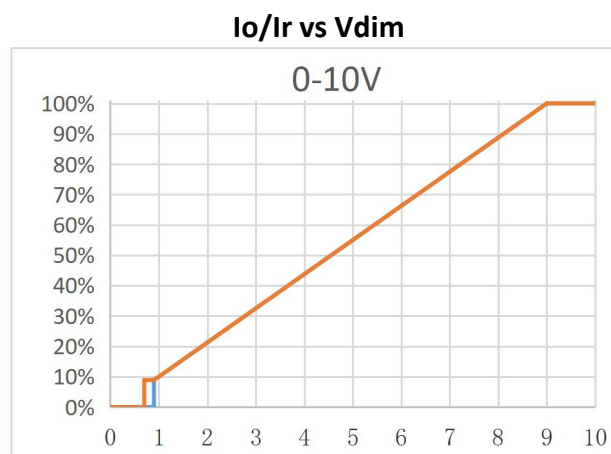
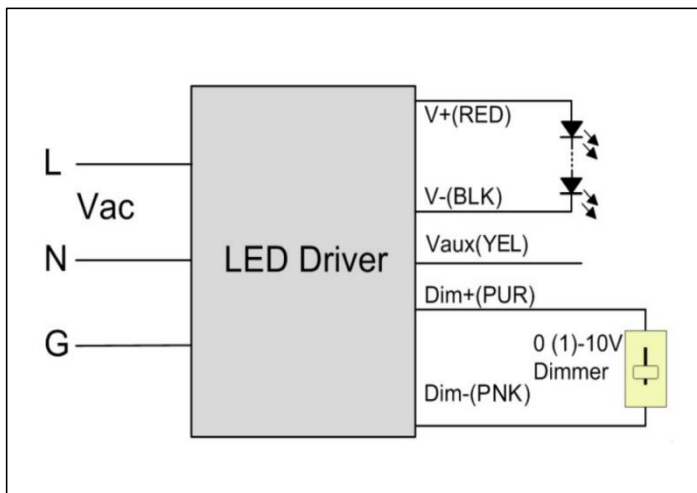
Power Factor Vs Different Loads



Life Vs Shell Temperature

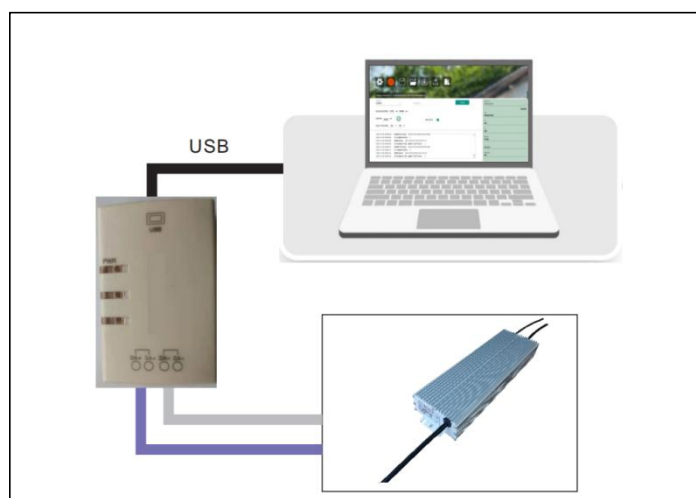


0-10V Analog Dimming & PWM Dimming

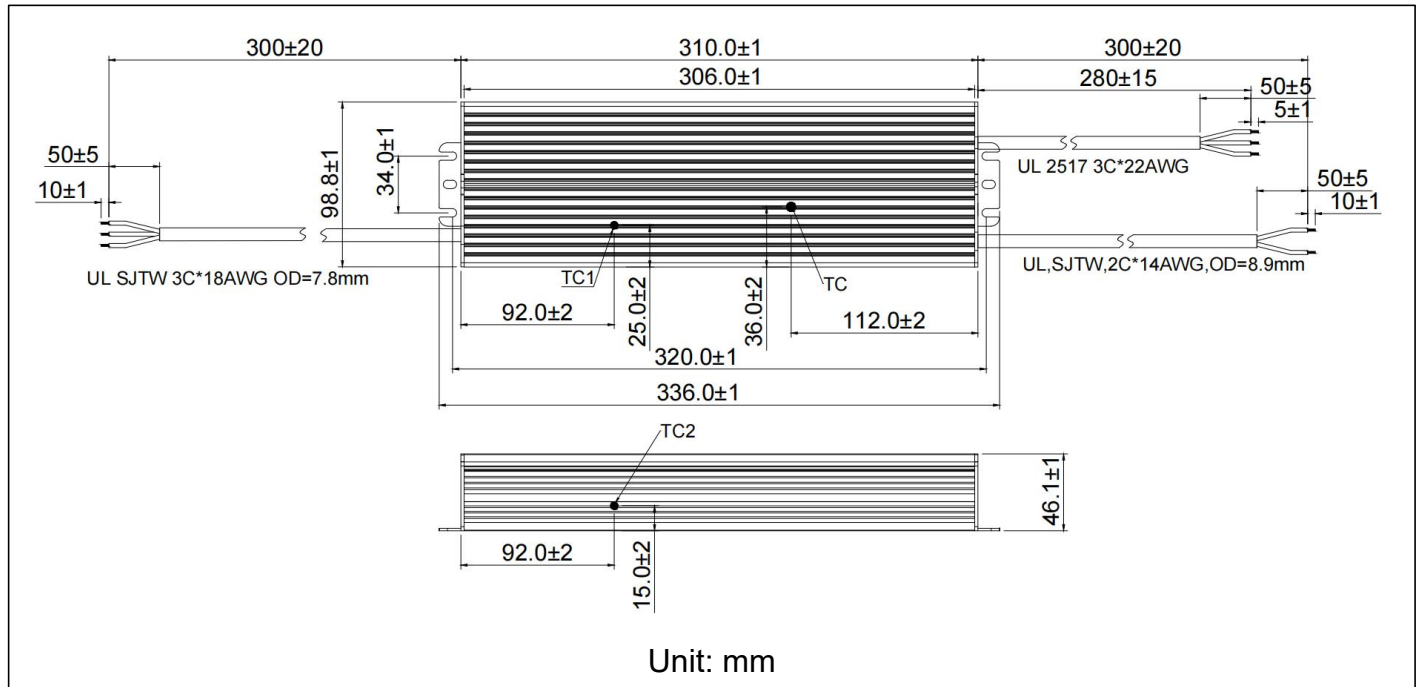


Note: The gray line in the dimming line will be changed to pink from January 1, 2022.

Programming wiring diagram



Mechanical Specification



Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2021.8.17	V1.0			
2021.10.17	V1.1	Update Performance Curve		
2022.1.2	V1.2	Dimming line	gray	pink
2022.8.26	V1.3	Update company logo		
		Update Performance Curve		
		Update Mechanical Specification		Add Tc1 and Tc2 point
2024.1.2	V1.4	Update Life Vs Shell Temperature		
		Lifetime	Typ.: 80000Hours	Typ.: 50000Hours
		Operating Ambient Temperature Ta	Note: At 220-277Vac input.	Note: At 176-305Vac input. Other voltage Ta 40°C max.