



- Dimming Control
- High Efficiency (Up to 91%)
- Active Power Factor Correction
- Constant Current
- Up to 305VAC Operation
- Waterproof to IP67
- Lightning Protection
- Comprehensive Protection Circuitry
- UL8750 & EN61347 Approvals
- RoHS Compliant

Electrical Specifications

Input

Input Voltage	90-305VAC
Input Frequency	47-63 Hz
Input Current	1.5A @ 100VAC 0.75A @ 220VAC
Inrush Current	65A @ 220VAC/25°C/Cold Start
Power Factor	See table
Leakage Current	1mA @ 277VAC

Output

Output Voltage	See table
Start Up Delay	2 seconds maximum at 110VAC/220VAC
Line Regulation	±1%
Load Regulation	±3%
Ripple & Noise	3% pk-pk, 20MHz bandwidth
Overvoltage Protection	Latch mode; restart power to return to normal operation
Short Circuit Protection	No damage to unit; auto recovery when fault removed
Overtemperature Protection	110°C maximum internal component temperature

Note: All specifications typical at 25°C unless noted.

General

Efficiency	See tables
Isolation	3kVAC input to output 3kVAC input to ground 0.5kVAC output to ground
MTBF (MIL-HDBK-217F)	250kHrs @110VAC, 2800mA model, 80% load, 25°C
Dimensions	7.64"L x 2.66"W x 1.46"H
Net Weight	2.20 lbs.

Environmental

Operating Temp.	-35°C to +65°C,
Operating Humidity	10% to 100% RH, non-condensing
Storage Temperature	-40°C to +85°C

Safety & EMC

Safety Approvals	
USA	UL8750 Approved UL1012, UL935
Canada	Compliance to CAN/CSA-C22.2 No. 0 CSA-C22.2 No. 107.1, CSA-C22.2 No. 250.0
Europe	EN61347-1, EN61347-2-13
EMI	EN55015 (Radiated & Conducted)
Harmonic Currents	EN61000-3-2 Class C
Voltage Flicker	EN61000-3-3
ESD Immunity	EN61000-4-2; 8kV air; 4kV contact
Radiated Immunity	EN61000-4-3
EFT/Burst	EN61000-4-4
Surge Immunity	EN61000-4-5; (2kV line-line; 4kV line-gnd)
Conducted Immunity	EN61000-4-6
Magnetic Field	EN61000-4-8
Dips / Interruptions	EN61000-4-11

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Models and Ratings Chart

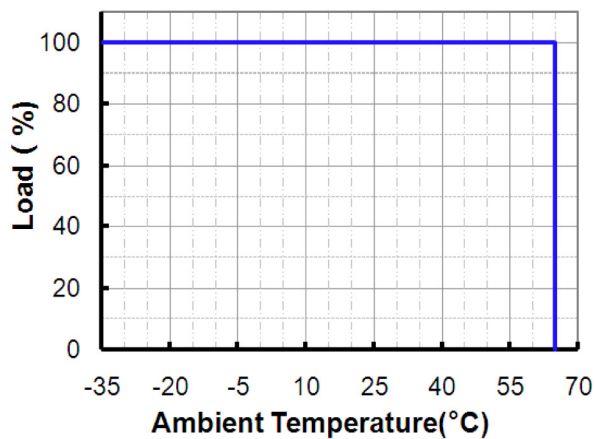
Nominal Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency ¹	Power Factor		Model Number ²
					110Vac	220Vac	
350mA	90-305 Vac	206Vdc-343Vdc	120W	91.0%	0.99	0.96	PIL120U-C350-DT
450mA	90-305 Vac	160Vdc-266Vdc	120W	91.0%	0.99	0.96	PIL120U-C450-DT
700mA	90-305 Vac	103Vdc-171Vdc	120W	91.0%	0.99	0.96	PIL120U-C700-DT
1050mA	90-305 Vac	68Vdc-114Vdc	120W	91.0%	0.99	0.96	PIL120U-C1050-DT
1400mA	90-305 Vac	52Vdc-86Vdc	120W	91.0%	0.99	0.96	PIL120U-C1400-DT
1700mA	90-305 Vac	41Vdc-68Vdc	120W	91.0%	0.99	0.96	PIL120U-C1750-DT
2100mA	90-305 Vac	34Vdc-57Vdc	120W	91.0%	0.99	0.96	PIL120U-C2100-DT
2450mA	90-305 Vac	29Vdc-49Vdc	120W	91.0%	0.99	0.96	PIL120U-C2450-DT
2800mA	90-305 Vac	26Vdc-43Vdc	120W	91.0%	0.99	0.96	PIL120U-C2800-DT
3100mA	90-305 Vac	23Vdc-38Vdc	120W	91.0%	0.99	0.96	PIL120U-C3150-DT
3500mA	90-305 Vac	20Vdc-34Vdc	120W	91.0%	0.99	0.96	PIL120U-C3500-DT
4200mA	90-305 Vac	17Vdc-28Vdc	120W	91.0%	0.99	0.96	PIL120U-C4200-DT
4900mA	90-305 Vac	14Vdc-24Vdc	120W	91.0%	0.99	0.96	PIL120U-C4900-DT

Note 1: Measured at 220VAC input and full load.

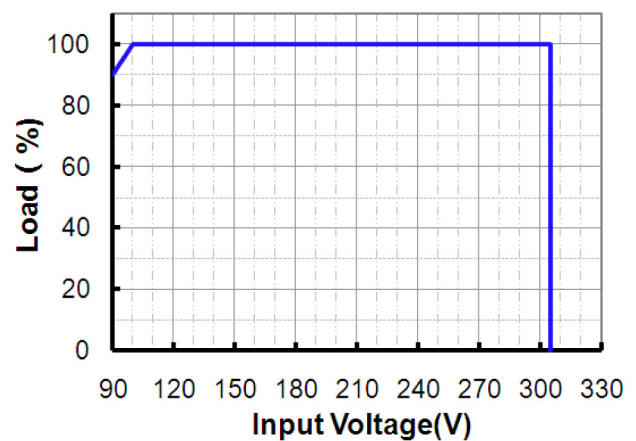
Note 2: Additional suffix may be included to denote variations or modifications to the base product.

Derating Curves

Derating Curve



Derating Curve



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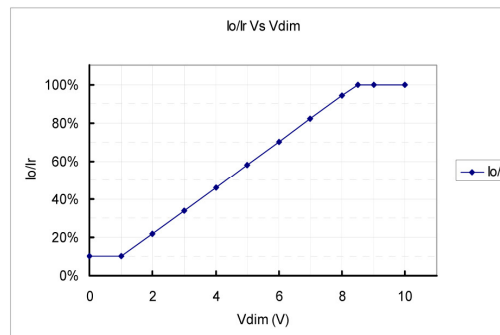
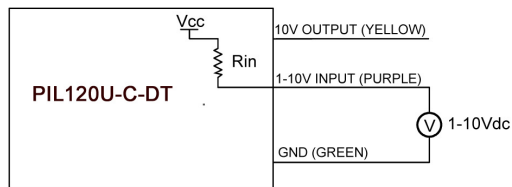
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Dimming Control (Secondary Side)

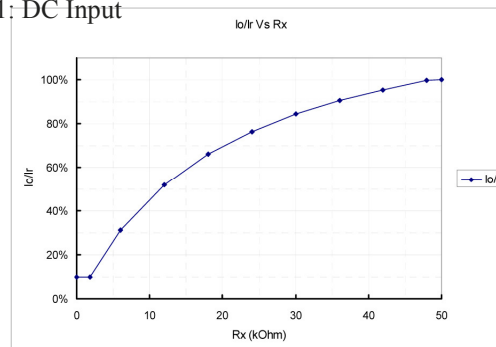
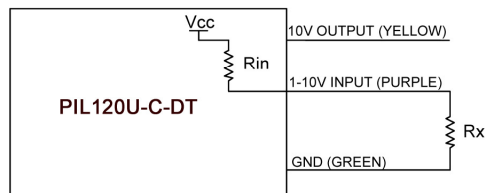
The function has two versions. One is with internal pull-up resistor; the output is full load when the dimming leads are floated. Another is with internal pull-down resistor; the output is 10% full load when the dimming leads are floated.

1. With pull-up resistor (Default, without suffix):

Parameter	Min.	Typ.	Max.	Notes
Vcc	9.5 V	10 V	10.5 V	
10V output source current	0 mA	-	10 mA	
Absolute maximum voltage on the 1~10V input pin	-2 V	-	12 V	
Source current on 1~10V input pin	0 mA	-	0.5 mA	
Value of Rin (the resistor inside the LED driver which locate between the 1-10V input and 10V output pin)	19.8 K	20 K	20.2 K	



Implementation 1: DC Input

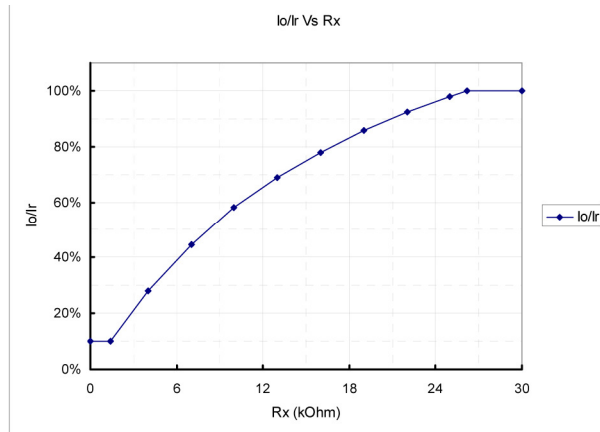
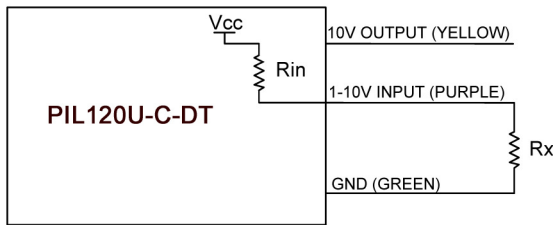


Implementation 2: External resistor (Vcc=12V)

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Implementation 3: External resistor ($V_{cc}=15V$)

Notes:

1. If the dimming function is not used, please let the dimming leads floated.
2. I_o is actual output current and I_r is rated current without dimming control.
3. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 60% of the max. output voltage for any given model).
4. If the output voltage is maintained above 60% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
5. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current can maintain about 10% I_r . When it for 8.5-10V, the output current can maintain about 100% I_r .
6. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

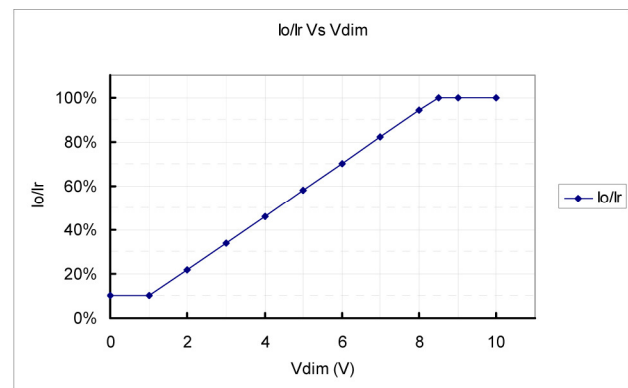
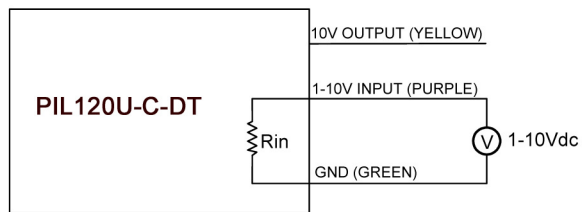
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2. With pull-down resistor: (The model number has a suffix –TBD)

Parameter	Min.	Typ.	Max.	Notes
10V output voltage	9.5 V	10 V	10.5 V	
10V output source current	0 mA	-	10 mA	
Absolute maximum voltage on the 1~10V input pin	-2 V	-	12 V	
Sink current on 1~10V input pin	0 mA	-	1 mA	
Value of Rin (the resistor inside the LED driver which locate between the 1-10V input and GND)	9.9 K	10 K	10.1 K	

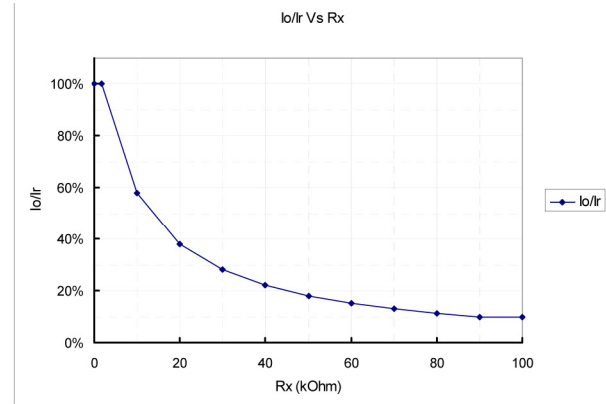
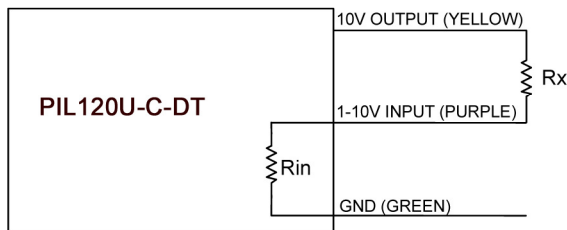
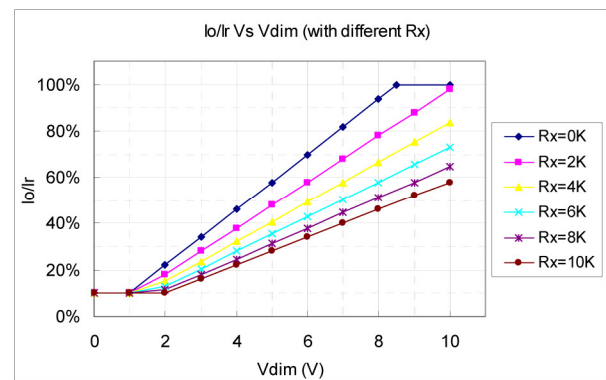
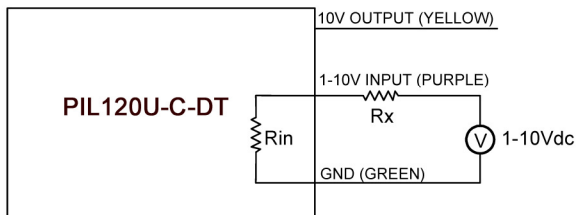


Implementation 1: DC input

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Implementation 2: External resistor

Implementation 3: External resistor and 1-10V DC Input
Notes:

1. If the dimming function is not used, please short 10V output pin (yellow) and 1-10 input pin (purple).
2. I_o is actual output current and I_r is rated current without dimming control.
3. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 60% of the max. output voltage for any given model).
4. If the output voltage is maintained above 60% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
5. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current can maintain about 10% I_r . When it for 8.5-10V, the output current can maintain about 100% I_r .
6. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

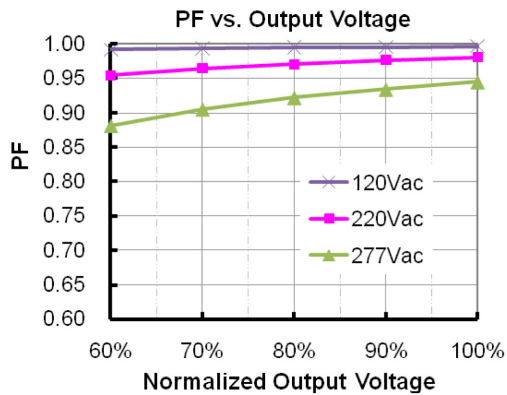
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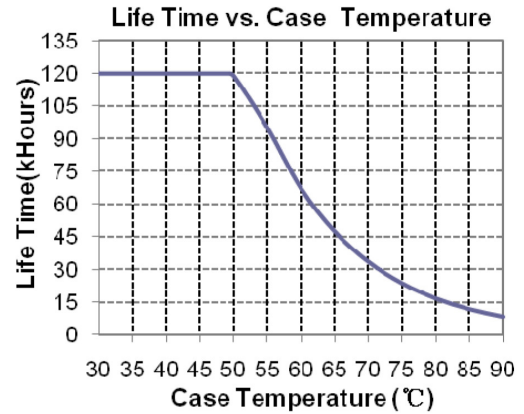
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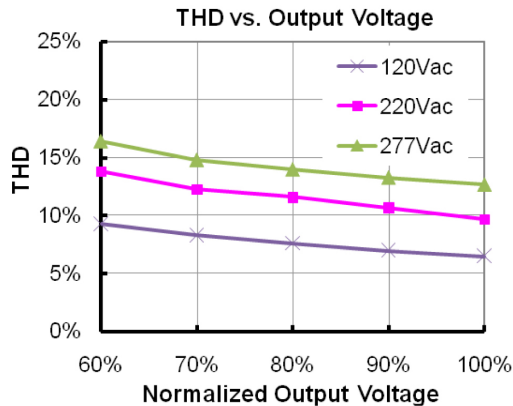
Power Factor Characteristics



Life Time vs. Case Temperature



Total Harmonic Distortion



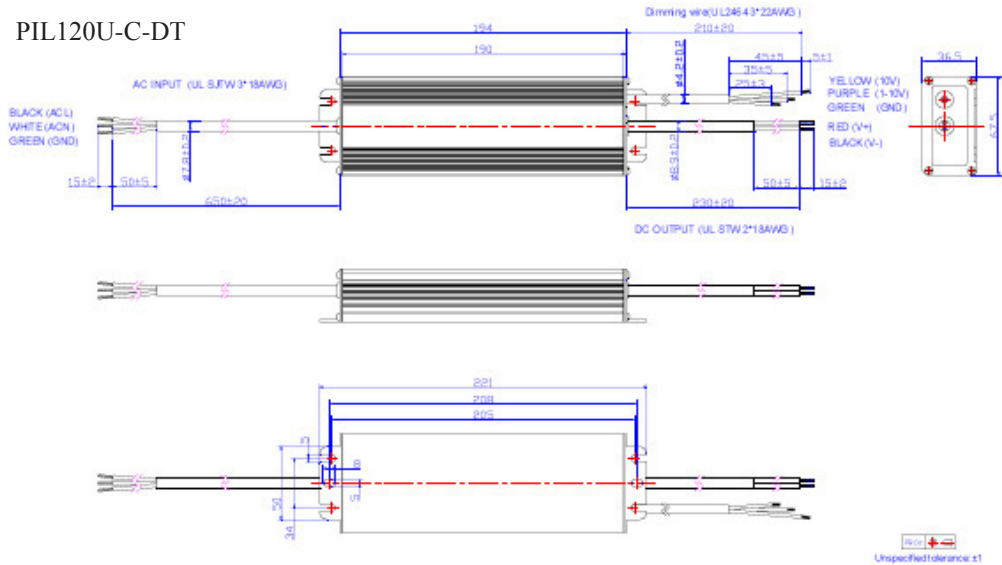
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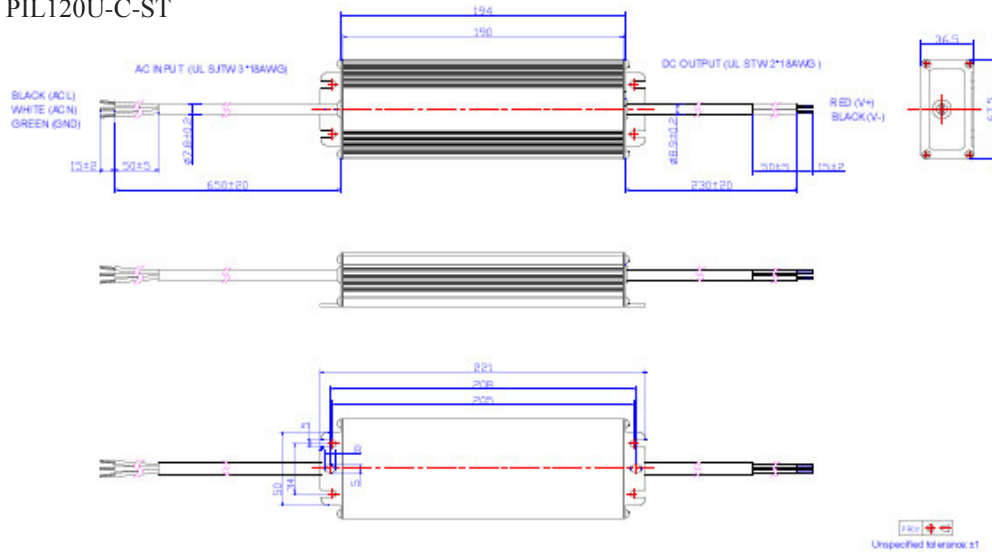
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Mechanical Outline

PIL120U-C-DT



PIL120U-C-ST



RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

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Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2010-03-23	A	Add Leakage Current in Input Specifications	/	Max. 1 mA At 277Vac 50Hz input
		Change the Max. value of Operating Temperature	+70 °C	+65 °C
		Change the Max. Ambient Temperature in Derating Curve	+70 °C	+65 °C
		Change the MTBF data and testing condition	460,000 hours / Measured at EUC-120S140DT(ST)	320,000 hours / Measured at EUC-120S280DT(ST)
		Change the Life Time testing condition	Measured at EUC-120S140DT(ST)	Measured at EUC-120S280DT(ST)
		Add one note in Dimming Control	/	7. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.
		Change the dimming control line in Mechanical Outline	/	/
2010-10-22	B	Update the part of dimming control	/	/
2010-10-18	C	Add another dimming version with pull-down resistor	/	/
2011-01-14	D	Update MTBF & Life Time Date	For One Model	For Two Models
2011-09-07	E	Dimming Control	/	/
2012-06-11	F	Mechanical Outline	/	Updated
		Life time curve	/	Added
2012-7-17	G	Max Case Temperature	/	Updated
		Surge Immunity Test: AC Power Line	line to line 2 kV, line to earth 4 kV	line to line 4 kV, line to earth 6 kV
2012-7-24	H	External resistor in pull-up resistor	/	Updated
2012-9-21	I	Inrush Current(I ² t)	/	Added
		MTBF, Life time	/	Typical Value added
		Life time Curve	/	Updated
		Min PF, THD Max	/	Added
2013-03-25	J	Efficiency of Model 4900mA	/	1% lower
		Turn-on delay time @120Vac	Typ 0.6s; Max1.5s	Typ 1.2s; Max2.0s
		Turn-on delay time @220Vac	Typ 0.6s; Max1.0s	Typ 0.6s; Max1.2s
		Max Case temperature	/	Corrected
		PF Curve	/	Added
		THD Curve	/	Added
		OTP	/	Updated
		Mechanical Outline	/	Updated

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