

200W Long Lifetime LED Driver



- Constant voltage and current output
- Universal AC input 100~305VAC
- Built-in active PFC function
- High efficiency
- Output protections: Short circuit/Over voltage/Over load
- Fixed derating-cutoff type temperature protection
- Digital, analog or DALI control dimming function
- Suitable for inside of the outdoor LED luminaries
- IP65 with Vo/Io adjusting screws, IP67 without Vo/Io adjusting screws
- Compliance to worldwide safety regulations for lighting
- Suitable for dry/damp/wet locations
- Eight years warranty











FC 1P65/67 8







General functions

Output Power	200W	Input Frequency	50/60Hz
Input Voltage Range	100~305Vac	Operating Temperature	-40 ℃ ~+60 ℃
Storage Temperature	-45 ℃ ~+85 ℃	Safety & EMC	UL8750, IEC61347, EN55015
Turn-on Delay Time	3.0S max.	Inrush Current	50A at 230Vac, Cold start
Over Temp Protection	Fixed derating-cutoff type temperature protection	Waterproof	IP65/IP67



200W Long Lifetime LED Driver

■ Detailed Specification

TABLE 1:

	Model	DH200-048S420X-YY	DH200-024S833X-YY	DH200-286S070X-YY	DH200-191S105X-YY	DH200-143S140X-YY		
	DC Voltage	48Vdc	24Vdc	286Vdc	191Vdc	143Vdc		
	Constant Current Operation Voltage note.5	29~48Vdc	15~24Vdc	172~286Vdc	115~191Vdc	86~143Vdc		
	Rated DC Current	4200mA	8330mA	700mA	1050mA	1400mA		
	Current Range	0~4200mA	0~8330mA	0~700mA	0~1050mA	0~1400mA		
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)						
Output	Ripple and Noise	200mVp-p	150mVp-p	2%Vo	2%Vo	2%Vo		
	Voltage ADJ. Range note.3	43~50Vdc	22~25Vdc	257~300Vdc	172~201Vdc	129~150Vdc		
	Current ADJ. Range note.3	2100~4200mA	4165~8330mA	350~700mA	525~1050mA	700~1400mA		
	Voltage Tolerance	±1%	±1%	±1%	±1%	±1%		
	Voltage Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Voltage Load Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Efficiency	94%	93.5%	93%	93%	93%		
la a de	Power Factor	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac		
Input	AC Current	2.4A/100Vac, 1.2A/230	OVac					
	Leakage Current	<0.75mA/230Vac; <0.5	imA/120Vac					
	Over Current	Constant current limiti	ng					
Output Protection	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.						
riotection	Over Voltage	Shut down at 140% Vo	and latch off o/p voltage	e, re-power on to recove	r			
	Operating Humidity	20~95% RH, non-condensing						
	Storage Humidity	10~95% RH						
Environmental	Temperature Coefficient	±0.03%/°C (0~50°C)						
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.						
	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac						
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25 °C /70% RH						
Safety & EMC	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B						
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3						
	EMC Immunity	Compliance to EN6100	0-4-2, 3, 4, 5, 6, 8, 11; Ef	NV50204, EN61547, EN5	5024			
	Authentication	UL/TUV/FCC/CE/RoHS,	/cqc	TUV/CE/RoHS				
	MTBF	173k Hrs at full load and 30 C ambient conditions per MIL-HDBK-217F						
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours						
Others	Dimensions (mm)	249×68×40						
	Max. Case Temp.	Tc max=80 Č						
	Net Weight	1.20Kg/pcs						
	1. All parameters NOT specia	ally mentioned are meas	ured at 230Vac input, rat	ed load and 25 °C of amb	pient temperature.			
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.							
	Output voltage and current can be adjusted by internal potentiometer ("A" type only).							
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.							
Note	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.							
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.							
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.							
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.							
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.							



200W Long Lifetime LED Driver

TABLE 2:

	Model	DH200-115S175X-YY	DH200-096S210X-YY	DH200-081S245X-YY	DH200-072S280X-YY	DH200-064S315X-YY		
	DC Voltage	115Vdc	96Vdc	81Vdc	72Vdc	64Vdc		
	Constant Current Operation Voltage note.5	69~115Vdc	58~96Vdc	49~81Vdc	44~72Vdc	58~64Vdc		
	Rated DC Current	1750mA	2100mA	2450mA	2800mA	3150mA		
	Current Range	0~1750mA	0~2100mA	0~2450mA	0~2800mA	0~3150mA		
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)						
Output	Ripple and Noise	2%Vo	2%Vo	2%Vo	2%Vo	2%Vo		
	Voltage ADJ. Range note.3	104~121Vdc	86~101Vdc	73~85Vdc	65~76Vdc	58~67Vdc		
	Current ADJ. Range note.3	875~1750mA	1050~2100mA	1225~2450mA	1400~2800mA	1575~3150mA		
	Voltage Tolerance	±1%	±1%	±1%	±1%	±1%		
	Voltage Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Voltage Load Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Efficiency	93%	92%	92%	92%	92%		
la a de	Power Factor	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac		
Input	AC Current	2.4A/100Vac, 1.2A/230	OVac					
	Leakage Current	<0.75mA/230Vac; <0.5	imA/120Vac					
	Over Current	Constant current limiti	ing					
Output Protection	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.						
riotection	Over Voltage	Shut down at 140% Vo	and latch off o/p voltage	e, re-power on to recove	r			
	Operating Humidity	ng Humidity 20~95% RH, non-condensing						
	Storage Humidity	10~95% RH						
Environmental	Temperature Coefficient	±0.03%/°C (0~50°C)						
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.						
	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac						
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25 °C /70% RH						
Safety & EMC	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B						
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3						
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024						
	Authentication	TUV/CE/RoHS						
	MTBF	173k Hrs at full load and 30 ℃ ambient conditions per MIL-HDBK-217F						
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours						
Others	Dimensions (mm)	249×68×40						
	Max. Case Temp.	Tc max=80 °C						
	Net Weight	1.20Kg/pcs						
	1. All parameters NOT specia	ally mentioned are meas	ured at 230Vac input, rat	ted load and 25 % of amb	pient temperature.			
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.							
	Output voltage and current can be adjusted by internal potentiometer ("A" type only).							
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.							
Note	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.							
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.							
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.							
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.							
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.							



200W Long Lifetime LED Driver

TABLE 3:

	Model	DH200-058S350X-YY	DH200-052S385X-YY	DH200-050S400X-YY	DH200-042S490X-YY	DH200-036S560X-YY		
	DC Voltage	58Vdc	52Vdc	50Vdc	42Vdc	36Vdc		
	Constant Current Operation Voltage note.5	44~58Vdc	35~52Vdc	29~50Vdc	22~42Vdc	20~36Vdc		
	Rated DC Current	3500mA	3850mA	4000mA	4900mA	5600mA		
	Current Range	0~3500mA	0~3850mA	0~4000mA	0~4900mA	0~5600mA		
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)						
Output	Ripple and Noise	2%Vo	2%Vo	200mVp-p	200mVp-p	200mVp-p		
	Voltage ADJ. Range note.3	52~61Vdc	47~55Vdc	45~53Vdc	38~44Vdc	32~38Vdc		
	Current ADJ. Range note.3	1750~3500mA	1925~3850mA	2000~4000mA	2450~4900mA	2800~5600mA		
	Voltage Tolerance	±1%	±1%	±1%	±1%	±1%		
	Voltage Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Voltage Load Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	Efficiency	92%	92%	94%	94%	94%		
	Power Factor	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac	0.97/230Vac		
Input	AC Current	2.4A/100Vac, 1.2A/23	OVac					
	Leakage Current	<0.75mA/230Vac; <0.5	imA/120Vac					
	Over Current	Constant current limiti	ing					
Output Protection	Short Circuit	ort Circuit Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.						
riotection	Over Voltage	Shut down at 140% Vo	and latch off o/p voltage	e, re-power on to recove	r			
	Operating Humidity	ing Humidity 20~95% RH, non-condensing						
	Storage Humidity	10~95% RH						
Environmental	Temperature Coefficient	±0.03%/°C (0~50°C)						
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.						
	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac						
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25 C /70% RH						
Safety & EMC	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B						
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3						
	EMC Immunity	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; ENV50204, EN61547, EN55024						
	Authentication	TUV/CE/RoHS						
	MTBF	173k Hrs at full load and 30 °C ambient conditions per MIL-HDBK-217F						
	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours						
Others	Dimensions (mm)	249×68×40						
	Max. Case Temp.	Tc max=80 °C						
	Net Weight	1.20Kg/pcs						
	1. All parameters NOT specia	ally mentioned are meas	ured at 230Vac input, rat	ed load and 25 °C of amb	pient temperature.			
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.							
	Output voltage and current can be adjusted by internal potentiometer ("A" type only).							
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.							
Note	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.							
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.							
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.							
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.							
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.							



200W Long Lifetime LED Driver

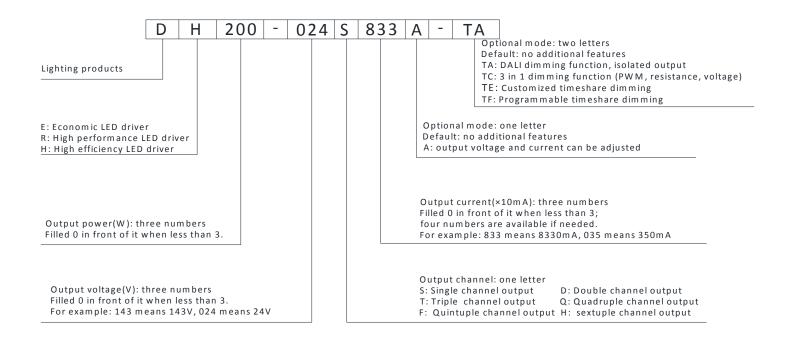
TABLE 4:

	Model	DH200-032S630X-YY					
	DC Voltage	32Vdc					
	Constant Current Operation Voltage note.5	17~32Vdc					
	Rated DC Current	6300mA					
	Current Range	0~6300mA					
	Dimming Current Range	10~100% rated output current (≥50% rated output voltage)					
Output	Ripple and Noise	200mVp-p					
	Voltage ADJ. Range note.3	29~34Vdc					
	Current ADJ. Range note.3	3150~6300mA					
	Voltage Tolerance	±1%					
	Voltage Line Regulation	±0.5%					
	Voltage Load Regulation	±0.5%					
	Efficiency	93.5%					
lanut	Power Factor	0.97/230Vac					
Input	AC Current	2.4A/100Vac, 1.2A/23	0Vac				
	Leakage Current	<0.75mA/230Vac; <0.5	5mA/120Vac				
	Over Current	Constant current limit	ing				
Output Protection	Short Circuit	Non-dimmer type: recover automatically at hiccup; Dimmer type: Short-circuit power ≤10W.					
Troccetion	Over Voltage	Shut down at 140% Vo	and latch off o/p voltage	e, re-power on to recove	r		
	Operating Humidity	20~95% RH, non-condensing					
Environmental	Storage Humidity	10~95% RH					
Environmental	Temperature Coefficient	±0.03%/ C (0~50 C)					
	Vibration	10~300Hz, 1G, Period for 60min, each along X、Y、Z axes.					
	Withstand Voltage	I/P-OP: 3.75KVac; IP-FG: 1.56KVac/2.00KVac (remove discharge tube); O/P-FG: 2.00KVac					
	Isolation Resistance	IP-OP, IP-FG, O/P-FG: 100M Ohms/500Vdc/25 C /70% RH					
Safety & EMC	EMC Interference	Compliance to EN55015, EN55022 (CISPR22) Class B					
	EMC Emission	Compliance to EN61000-3-2 Class C (≥50%load); EN61000-3-3					
	EMC Immunity	Compliance to EN6100	00-4-2, 3, 4, 5, 6, 8, 11; EI	NV50204, EN61547, EN5	5024		
	Authentication	TUV/CE/RoHS					
	MTBF	173k Hrs at full load a	nd 30 ℃ ambient conditi	ons per MIL-HDBK-217F			
Others	Input Over-voltage	Can survive input over-voltage stress of 320Vac for 48 hours					
Others	Dimensions (mm)	249×68×40					
	Max. Case Temp.	Tc max=80 ℃					
	Net Weight	1.20Kg/pcs					
	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25 $^\circ$ C of ambient temperature.						
	2. Ripple & noise are measured: at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.						
	3. Output voltage and current can be adjusted by internal potentiometer ("A" type only).						
	4. Tolerance: includes set up tolerance, voltage line regulation and voltage load regulation.						
Note	5. Constant current operation region is within 60% ~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.						
	6. Derating may be needed under low input voltages. Please check the Static Characteristics for more details.						
	7. Safety and EMC design refer to EN60598-1, subject 8750 (UL), CNS15233, GB7000.1, FCC part18.						
	8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.						
	9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.						



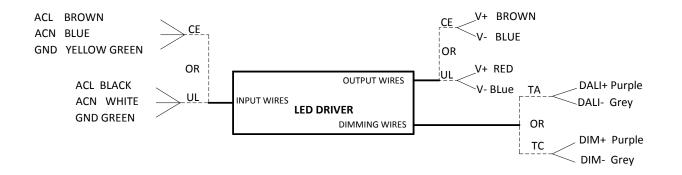
200W Long Lifetime LED Driver

■Part number code



For example: DH200-024S833A-TA means: high efficiency LED driver; output power 200W; output voltage 24Vdc; output current 8330mA; single output; output voltage and current can be adjusted; with DALI dimming function and isolated output.

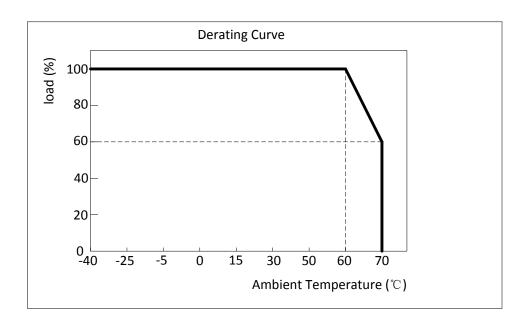
wiring diagram



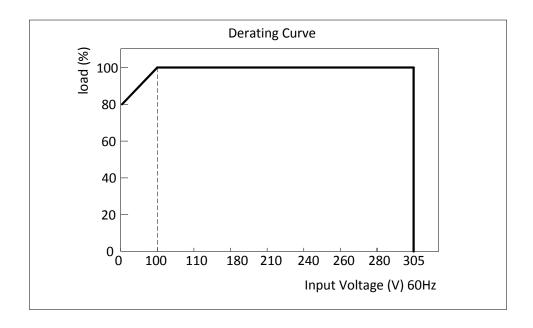


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■ Derating Curve



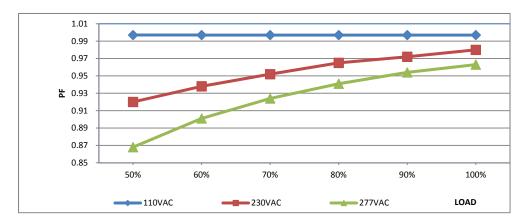
Static Characteristics



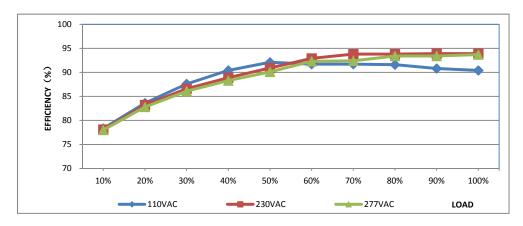


200W Long Lifetime LED Driver

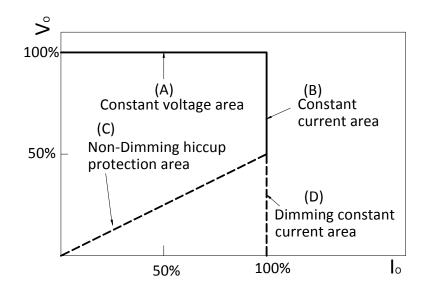
Power Factor Characteristic (DH200-024S833)



EFFICIENCY vs LOAD (DH200-024S833)



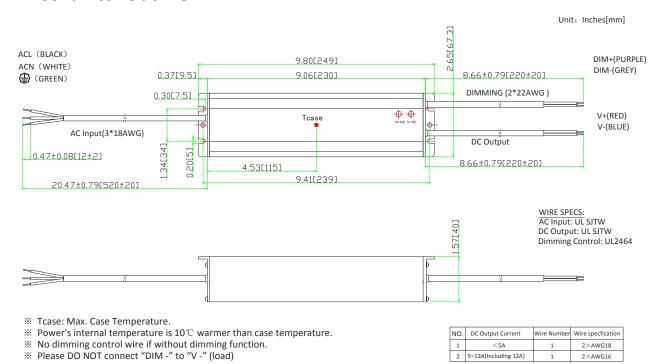
■Typical LED power supply I-V curve





200W Long Lifetime LED Driver

■ Mechanical Outline



"A" option

- a. Output voltage and current can be adjusted by internal potentiometer.
- h IP65
- c. These products shall be enclosed in the end product, when the unit provided with voltage and current adjustable holes.

■"-TA" option: DALI dimming

- a. DALI Testing Software: Please refer to www.brightway-tech.com for downloading.
- b. Percentage of rated current: 10%~100%.
- c. "TA" version LED driver shall work with a DALI Master and DALI Master control software.

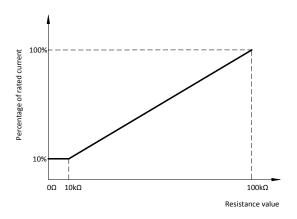




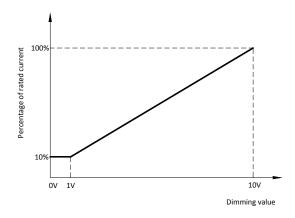
200W Long Lifetime LED Driver

■"-TC" option: 0-10V, resistance & PWM dimming

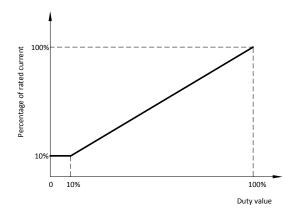
a. Reference resistance value for output current adjustment (Typical)



b. 0-10V dimming function for output current adjustment (Typical)



c. 10V PWM signal for output current adjustment (Typical): Frequency range: 200Hz~1.5KHz





200W Long Lifetime LED Driver

Dimming control details:

Parameters		Minimum	Typical	Maximum
	Resistance	0kΩ	0-100kΩ	∞
Dimming Type	Voltage	-2V	0-10V	15V
	PWM(10%~100% f=200Hz~1.5KHz)	-2V	0-10V	15V
Dimming Current		-0.5mA	-	0.5mA

■"-TE" option: Customized timeshare dimming.

- a. Different output current (10% 100% rate output current) can be set for different time periods.
- b. Maximum 4 sections is available. The minimum length is 0 to maximum 12 hours for each section.
- c. The parameter can't be changed after shipping.

"-TF" option: Programmable timeshare dimming.

- a. Output current is programmable with the range of 10%~100% of rated output current.
- b. Maximum 4 sections timeshare dimming is available. The minimum length is 0 to maximum 12 hours for each section.

For example:

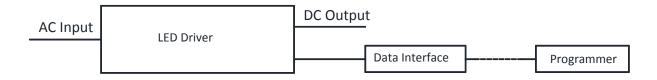
The first section: the time period is $0^{\sim}1h$, the output current is 40% of rated output current.

The second section: the time period is $\underline{1h}^4h$, the output current is $\underline{100\%}$ of rated output current.

The third section: the time period is $4h^8h$, the output current is 40% of rated output current.

The fourth section: the time period is 8h~12h, output current is 60% of rated output current.

- c. The parameters are set by a programmer.
- d. The data interface is waterproof.



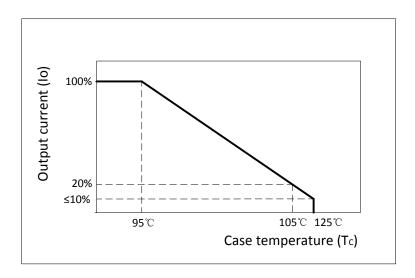
■Input and output Dielectric strength

Isolation	Input Wires	Output Wires	Isolated Dimming Control Wires	Chassis
Input Wires	NA	3750	2000	1560/2000(remove discharge tube)
Output Wires	3750	NA	2000	2000
Isolated Dimming Control Wires	2000	2000	NA	2000
Chassis	1560/2000(remove discharge tube)	2000	2000	NA



200W Long Lifetime LED Driver

■Fixed derating-cutoff type temperature protection



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