

Features

- Ultra High Efficiency (Up to 91.0%)
- Four Channels Output
- Active Power Factor Correction (0.99 Typical)
- Constant Current Output
- Lightning Protection
- All-Around Protection: SCP, OTP, OVP
- Waterproof (IP67) and Damp & Wet Location
- Class 2 and SELV



Description

The EUC-144QxxxDT(ST) series operates from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. Features include lightning protection, short circuit protection, over voltage protection and over temperature protection.

Models

Output Current (1)	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number (3)
					120Vac	220Vac	
700 mA	90~305 Vac	29~54 Vdc	151 W	91.0%	0.99	0.95	EUC-144Q070DT(ST)(4)
1050 mA	90~305 Vac	19~36 Vdc	151 W	90.0%	0.99	0.95	EUC-144Q105DT(ST)(5)
1400 mA	90~305 Vac	14~25 Vdc	140 W	89.0%	0.99	0.95	EUC-144Q140DT(ST)(6)

- Notes:** (1) The output current is adjustable at factory from 50% to 100%.
 (2) Measured at full load and 220 Vac input.
 (3) A suffix -xxxx may be added to denote variations or modifications to the base product, where x can be any alphanumeric character or blank.
 (4) Class 2 output (USR), Non-Class 2 output (CNR)
 (5) Class 2 output (USR), Class 2 output (CNR) for wet location.
 (6) Class 2 output (USR) and Class 2 output (CNR) for wet location.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage Range	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	1 mA	At 277Vac 60Hz input
Input AC Current	-	-	2.1 A	Measured at full load and 100 Vac input.
	-	-	0.9 A	Measured at full load and 220 Vac input.
Inrush Current	-	-	65 A	At 220Vac input, 25°C cold start, duration=1 ms, 10%l _{pk} -10%l _{pk} .
Inrush Current(I ² t)	-	-	1.7 A ² s	
Power Factor	0.90	-	-	At 100Vac-220Vac, 75%load-100%load
THD	-	-	20%	At 100Vac-277Vac, 75%load-100%load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output channel	-	4	-	
Output Current Tolerance	-5%		5%	
No-load Output Voltage I _o = 700 mA I _o = 1050 mA I _o = 1400 mA	- - -	- - -	- - -	Hiccup mode.
Output Current Ripple (pk-pk)	-	10% I _o	15% I _o	
Output Overshoot / Undershoot	-	-	10%	When power on or off.
Line Regulation	-	-	±1%	
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	1.0 s	2.0 s	Measured at 120Vac input.
	-	0.5 s	1.5 s	Measured at 220Vac input.
Temperature Coefficient	-	-	0.02%/°C	Case temperature = 0°C ~Tc max

Note: All specifications are typical at 25 °C unless otherwise stated.

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection	-	120 °C	-	When OTP occurs, the output current decreases down to the half of the normal output current. The output shall be auto recovery when case temperature becomes normal.
Short Circuit Protection	Single or dual channel short does not affect the normal work of other channels. The driver recovers after short is removed and AC input recycled. Three or four channel short latches the driver and it recovers after the short is removed.			

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency I _o = 700 mA I _o = 1050 mA I _o = 1400 mA	87.0% 86.0% 85.0%	88.0% 87.0% 86.0%	- - -	Measured at full load, 120Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 1% lower, if measured immediately after startup.
Efficiency I _o = 700 mA I _o = 1050 mA I _o = 1400 mA	90.0% 89.0% 88.0%	91.0% 90.0% 89.0%	- - -	Measured at full load, 220Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 1% lower, if measured immediately after startup.
MTBF	-	383,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Life Time	-	95,000 Hours	-	Measured at 220Vac input, 80%Load; Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Case temperature	-	-	90°C	
Dimensions Inches (L x W x H) Millimeters (L x W x H)	7.40x 3.46 x 1.5 188 x88 x 38			
Net Weight	-	1340 g	-	

Note: All specifications are typical at 25 °C unless otherwise stated.

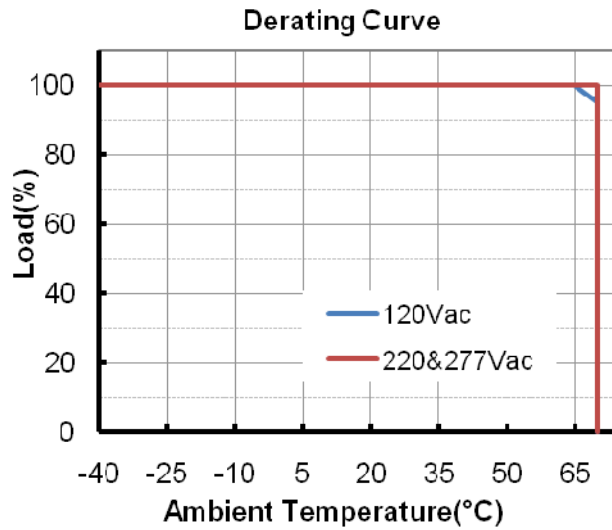
Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-40 °C	-	+70 °C	Humidity: 10% RH to 100% RH See Derating Curve for more details
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH

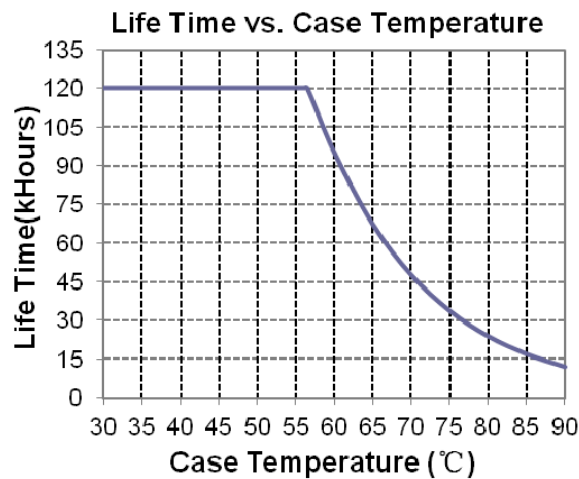
Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, UL1012, UL1310 Class 2, CSA-C22.2 No. 107.1, CSA C22.2 NO. 223-M91 Class 2
CE	EN 61347-1, EN61347-2-13
EMI Standards	Notes
EN 55015	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15	ANSI C63.4: 2009 Class B
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 15 kV air discharge, 8 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Derating Curve

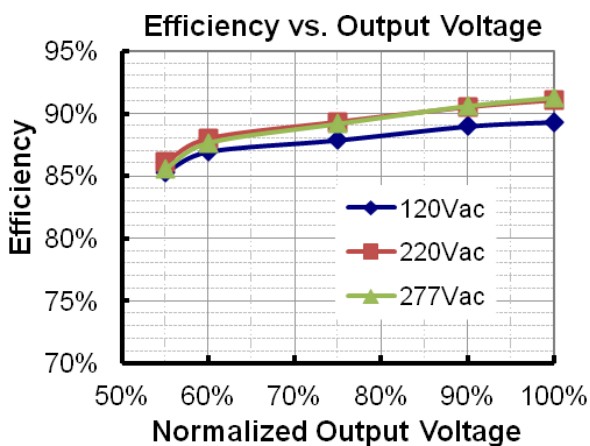


Life Time vs. Case Temperature Curve

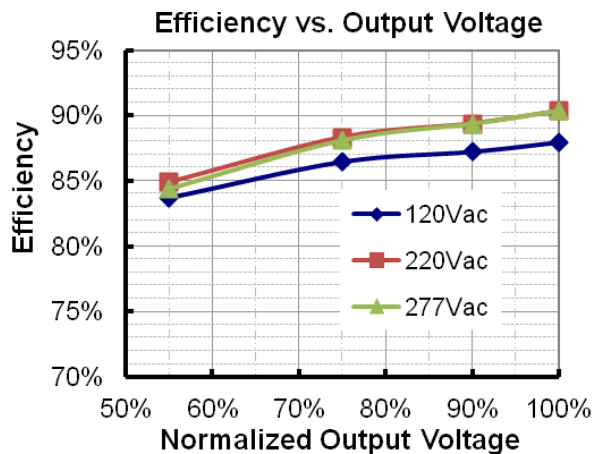


Efficiency vs. Load

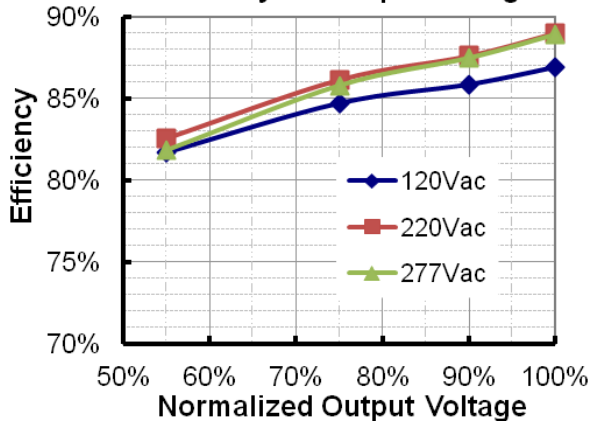
EUC-144Q070DT(ST)



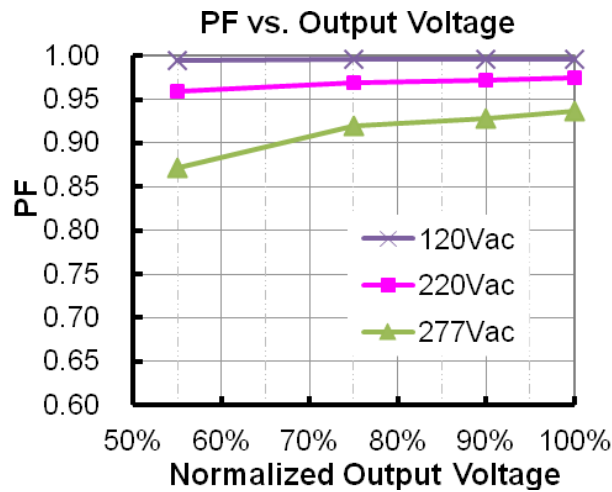
EUC-144Q105DT(ST)



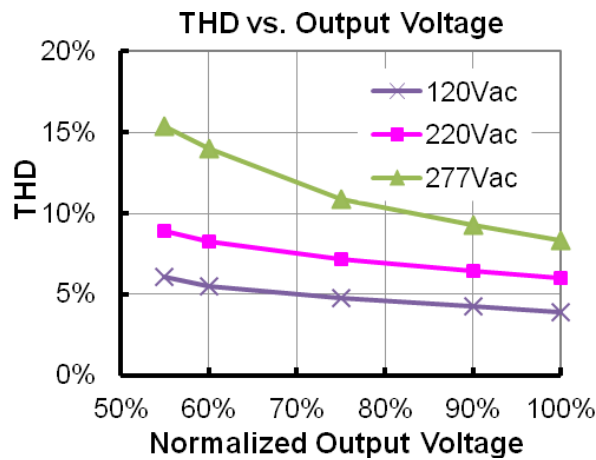
EUC-144Q140DT(ST)
Efficiency vs. Output Voltage



Power Factor Characteristics



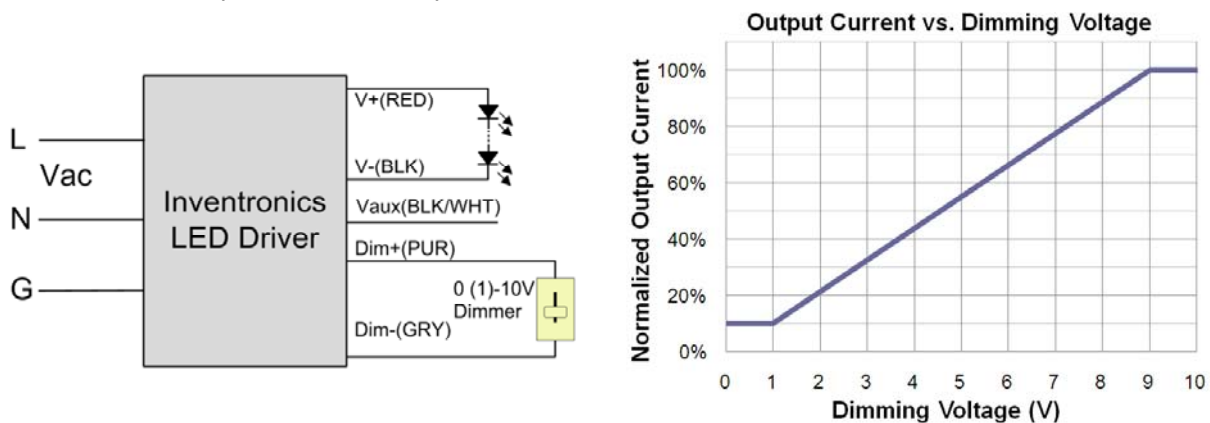
Total Harmonic Distortion



Dimming Control (On secondary side)

Parameter	Min.	Typ.	Max.	Notes
12V output voltage (Vc)	10.8 V	12 V	13.2 V	
12V Output source current	0 mA		20 mA	
Absolute maximum voltage on the 1~10V input pin	0 V	-	12 V	
Source current on 1~10V input pin	0 uA	-	200 uA	

The dimmer control may be operated from either a potentiometer or from an input signal of 1 – 10 Vdc. Two recommended implementations are provided below.



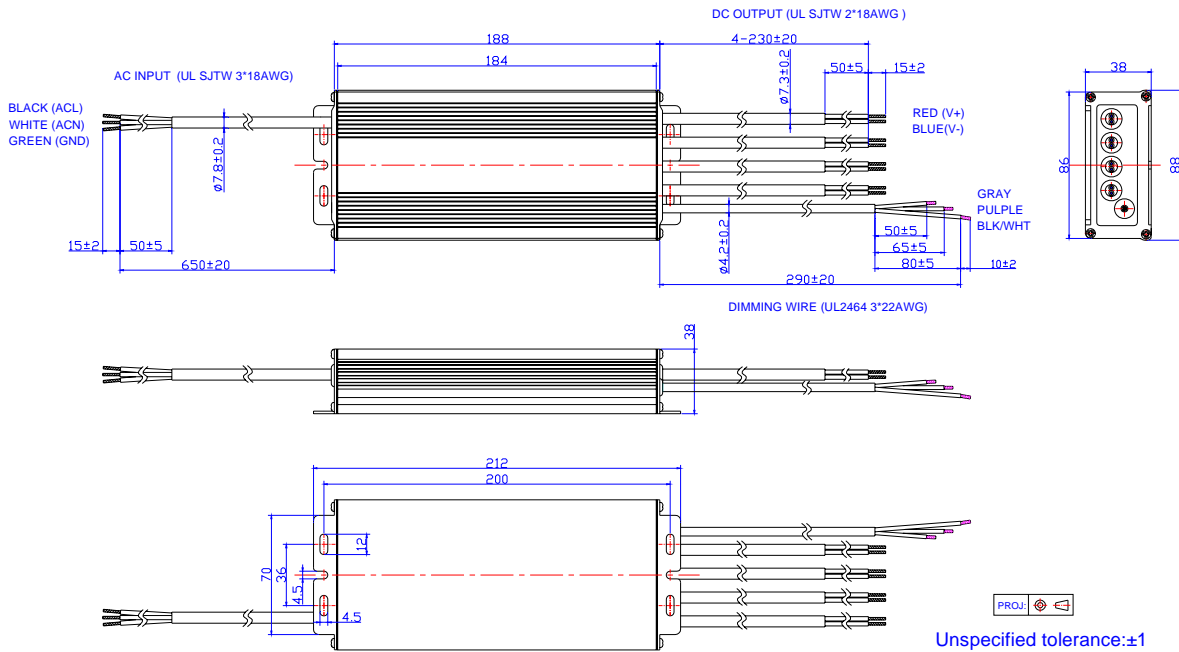
Implementation: DC input

Notes:

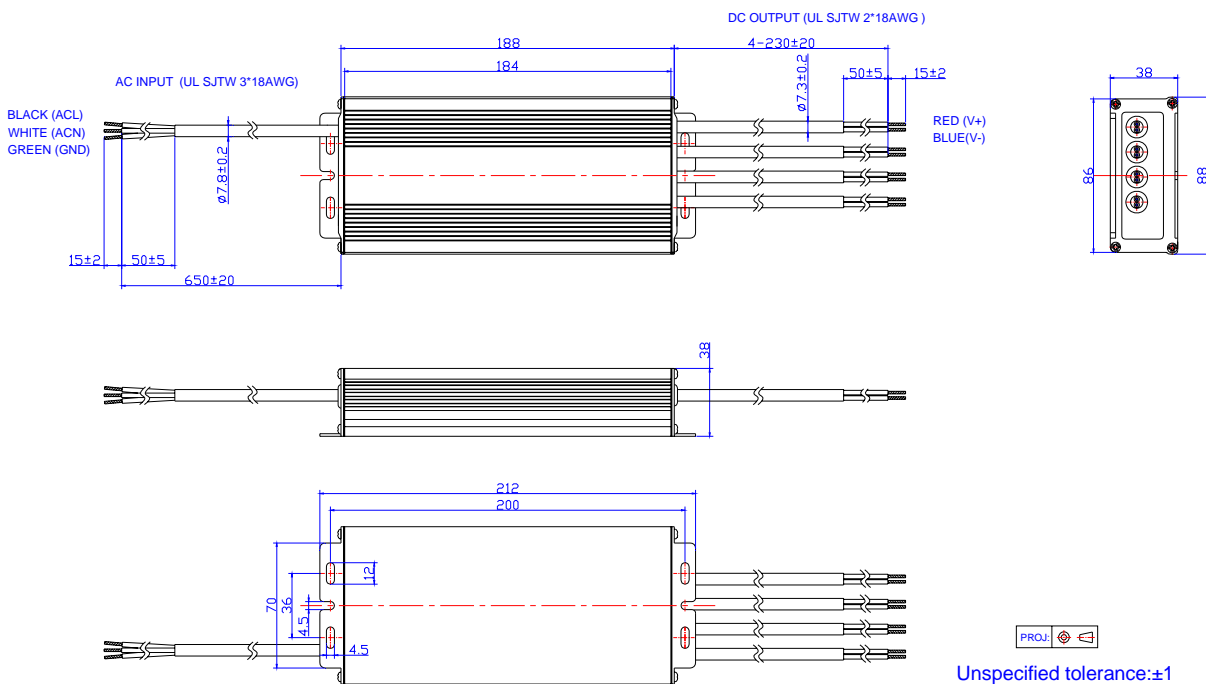
1. I_o is actual output current and I_r is rated current without dimming control.
2. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 60% of the max. output voltage for any given model).
3. If the output voltage is maintained above 60%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

Mechanical Outline

EUC-144QxxxDT



EUC-144QxxxST



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.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2012-09-07	A	Datasheet Release	/	/
2012-11-07	B	Over Temperature Protection	115 °C	120 °C
		SELV and Wet location of models corrected	/	/
2013-03-14	C	Other models of efficiency curve except 350mA	/	Added
		THD Curve	/	Added
		Mechanical Outline	/	Updated
		Life time	88,700hrs@60°C	90,400hrs@60°C
		Life time curve	/	Updated
2013-05-21	D	Life time	90,400hrs@60°C	95,000hrs@60°C
		Life time curve	/	Updated
2013-10-10	E	No-load Output Voltage	/	Updated
2014-02-25	F	PF Curve	/	Corrected