

Features

- High Efficiency (Up to 88%)
- Active Power Factor Correction (Typical 0.92)
- Constant Output Current
- Waterproof (IP66)
- Dimming Control
- All-Around Protection: OVP, SCP, OLP
- Comply With UL8750 & EN61347 Safety Regulations
- Comply With ANSI/IEEE C62.41, Class A Operation
- Comply With FCC Part15 Class B



Description

The EUC-040SxxxDS(PS) Series operates from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. Features include dimming control, over voltage protection, short circuit protection and over load protection.

Models

Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (1)	Power Factor		Model Number (2, 3)
					110Vac	220Vac	
350 mA	90 ~ 305 Vac	38-114 Vdc	40 W	88%	0.98	0.92	EUC-040S035DS(PS)(4)
450 mA	90 ~ 305 Vac	30-89 Vdc	40 W	88%	0.98	0.92	EUC-040S045DS(PS)(4)
700 mA	90 ~ 305 Vac	18-54 Vdc	38 W	87%	0.98	0.92	EUC-040S070DS(PS)(5)
1050 mA	90 ~ 305 Vac	12-36 Vdc	38 W	87%	0.98	0.92	EUC-040S105DS(PS)(6)
1280 mA	90 ~ 305 Vac	10-29 Vdc	38 W	87%	0.98	0.92	EUC-040S128DS(PS)(6)
1400 mA	90 ~ 305 Vac	10-25 Vdc	36 W	87%	0.98	0.92	EUC-040S140DS(PS)(6)
1660 mA	90 ~ 305 Vac	8-23 Vdc	38 W	86%	0.98	0.92	EUC-040S166DS(PS)(6)
2220 mA	90 ~ 305 Vac	6-16 Vdc	36 W	85%	0.98	0.92	EUC-040S222DS(PS)(6)
3330 mA	90 ~ 305 Vac	4-11 Vdc	35 W	84%	0.98	0.92	EUC-040S333DS(PS)(6)

- Notes:**
- (1) Measured at full load and 220 Vac input.
 - (2) The DS suffix may be changed to PS to omit the dimming function and remove the three wires associated with that function.
 - (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) Non-Class 2 output (USR & CNR).
 - (5) Class 2 output (USR), Non-Class 2 output (CNR).
 - (6) Class 2 output (USR & CNR).

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.5 mA	At 277Vac 60Hz input
Input AC Current	-	-	0.48 A	Measured at full load and 100 Vac input.
	-	-	0.23 A	Measured at full load and 220 Vac input.
Inrush Current	-	-	60 A	At 230Vac input 25°C Cold Start.

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
No-load Output Voltage				
$I_o = 350$ mA	-	-	130 V	
$I_o = 450$ mA	-	-	100 V	
$I_o = 700$ mA	-	-	60 V	
$I_o = 1050$ mA	-	-	42 V	
$I_o = 1280$ mA	-	-	35 V	
$I_o = 1660$ mA	-	-	35 V	
$I_o = 1400$ mA	-	-	30 V	
$I_o = 2220$ mA	-	-	23 V	
$I_o = 3330$ mA	-	-	17 V	
Ripple & Noise				
$I_o = 350$ mA	-	-	5 V	Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 104/500V ceramic capacitor and a 10uF/200V electrolysis capacitor
$I_o = 450$ mA	-	-	5 V	
$I_o = 700$ mA	-	-	5 V	
$I_o = 1050$ mA	-	-	5 V	
$I_o = 1280$ mA	-	-	3 V	
$I_o = 1660$ mA	-	-	3 V	
$I_o = 1400$ mA	-	-	3 V	
$I_o = 2220$ mA	-	-	3 V	
$I_o = 3330$ mA	-	-	3 V	
Line Regulation	-	-	2%	
Load Regulation	-	-	5%	
Turn-on Delay Time	-	2.5 s	3.0 s	Measured at 110Vac input.
	-	1.5 s	2.0 s	Measured at 220Vac input.

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

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Load Protection	-	1.25 Vomax	-	Hiccup mode. The power supply shall be self-recovery when the fault condition is removed.
Short Circuit Protection	No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency				
I _O = 350 mA	86%	87%	-	Measured at full load and 110 Vac input.
I _O = 450 mA	86%	87%	-	
I _O = 700 mA	85%	86%	-	
I _O = 1050 mA	85%	86%	-	
I _O = 1280 mA	85%	86%	-	
I _O = 1660 mA	85%	86%	-	
I _O = 1400 mA	84%	85%	-	
I _O = 2220 mA	83%	84%	-	
I _O = 3330 mA	82%	83%	-	
Efficiency				
I _O = 350 mA	87%	88%	-	Measured at full load and 220 Vac input.
I _O = 450 mA	87%	88%	-	
I _O = 700 mA	86%	87%	-	
I _O = 1050 mA	86%	87%	-	
I _O = 1280 mA	86%	87%	-	
I _O = 1660 mA	86%	87%	-	
I _O = 1400 mA	85%	86%	-	
I _O = 2220 mA	84%	85%	-	
I _O = 3330 mA	83%	84%	-	
No Load Power Dissipation	-	-	6 W	
MTBF	487,000 Hours	-	-	Measured at 110Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Life Time	77,000 Hours	-	-	Measured at 110Vac input, 80%Load and 45°C ambient temperature
Case Temperature	-	-	83°C	350、450mA :87.5°C
Dimensions				
Inches (L × W × H)	3.74 × 2.76 × 1.26			
Millimeters (L × W × H)	95 × 70 × 32			
Net Weight	-	360 g	-	

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

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-20 °C	-	+60 °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

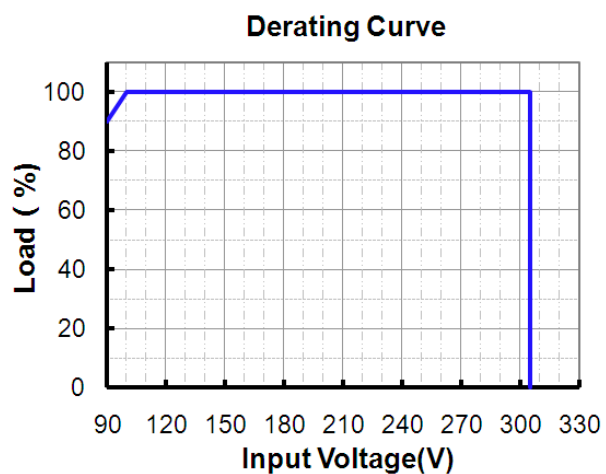
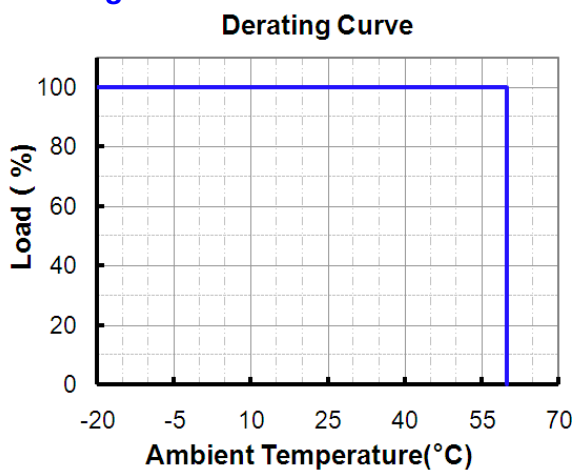
Safety & EMC Compliance

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

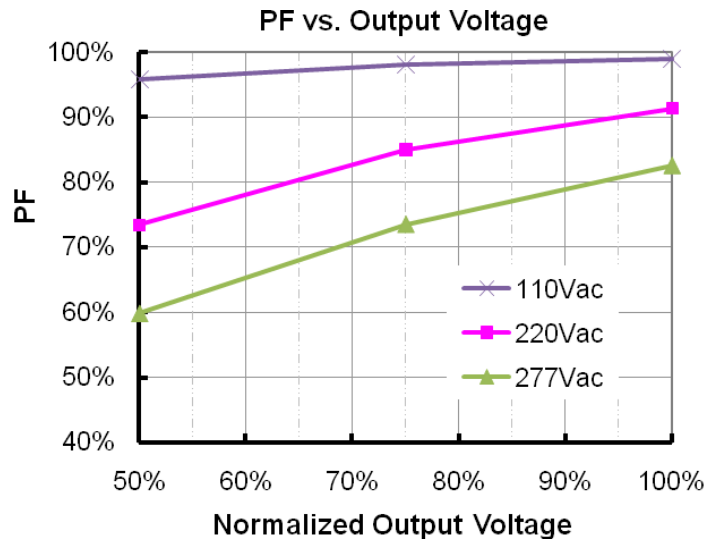
Safety & EMC Compliance (Continued)

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	FCC Part 15 Class B, ANSI C63.4: 2009.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-6	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
ENERGY STAR Standards	Notes
ANSI/IEEE C62.41-1991	Transient Protection, power supply shall comply with Class A operation. The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode.

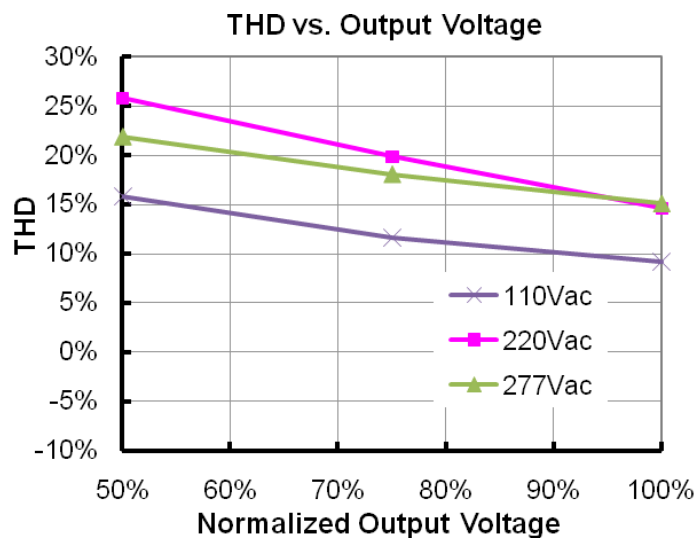
Derating Curve



Power Factor Characteristics (700 mA For Reference)



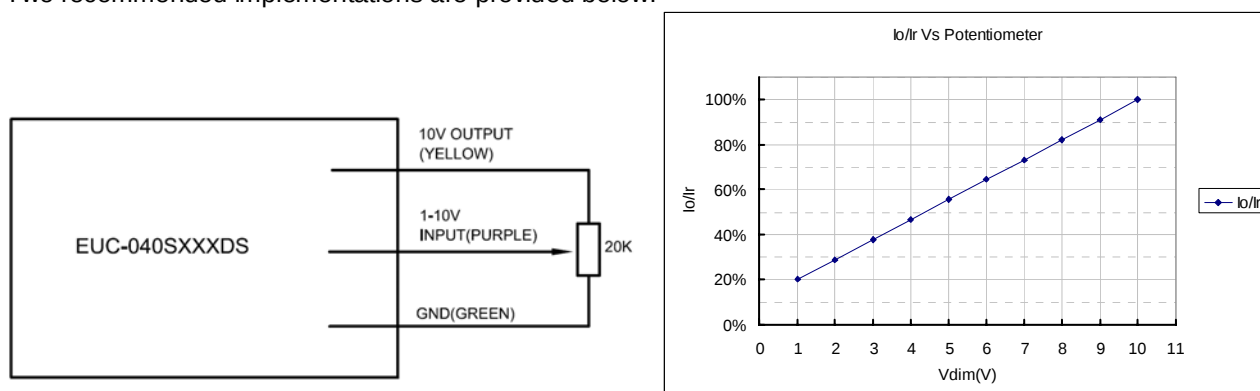
Total Harmonic Distortion (700 mA For Reference)



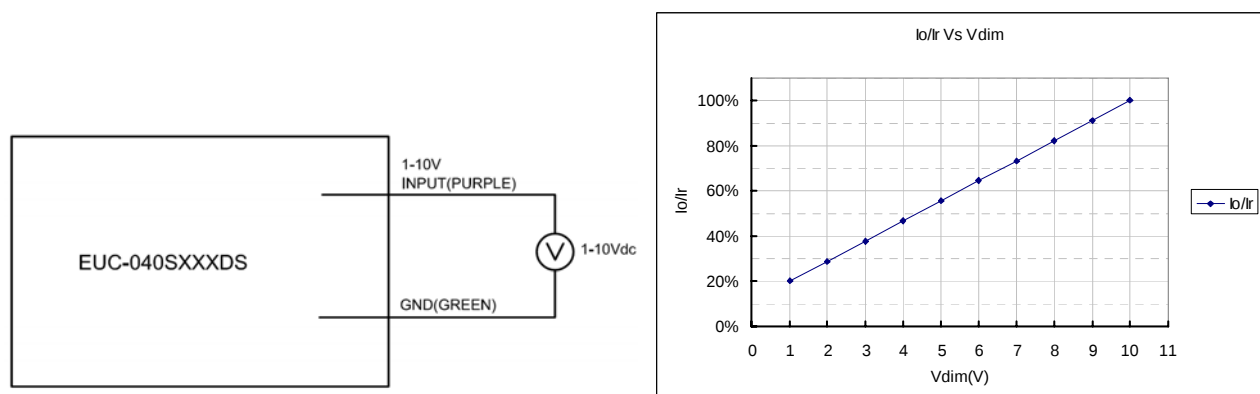
Dimming Control (On secondary side)

Parameter	Min.	Typ.	Max.	Notes
10V output voltage	9.8 V	10 V	10.2 V	
10V output source current	-10 mA	-	2 mA	
Absolute maximum voltage on the 1~10V input pin	-2 V	-	15 V	
Source current on 1~10V input pin	0 mA	-	1 mA	

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 1: Potentiometer Control

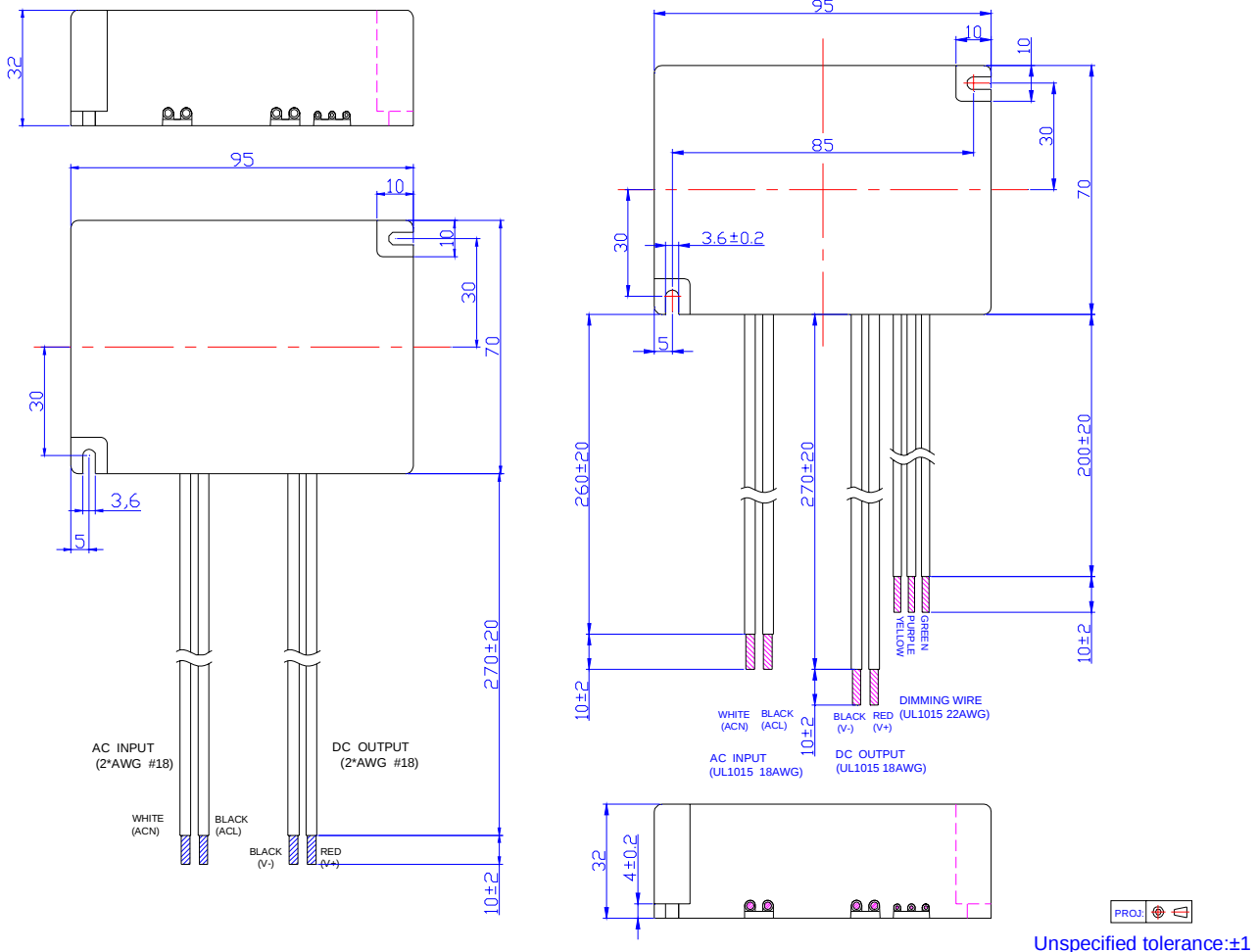


Implementation 2: DC Input

Notes:

1. If the dimming function is not used, please short 10 V output pin (yellow) and 1-10 V input pin (purple). The output current is about 92%Ir when the 1-10V input pin is floating.
2. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 33% of the max. output voltage for any given model).
3. The dimming voltage can be tuned down to less than 1V, and the output current will be decreased to about 10%Ir; but the connected LEDs may flicker. Keeping dimming voltage greater than 1V in application is strongly recommended.
4. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

Mechanical Outline



EUC-040SxxxPS

EUC-040SxxxDS

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
2009-09-02	V2.1	Change MTBF and Life Time		
2009-09-11	V2.2	1. Change Turn-on Delay Time 2. Add a model of 1280mA.		
2009-12-03	A	Modify the PF value, no-load power dissipation, dimming range		
2010-04-12	C	Change the Power Factor	110Vac 0.99 220Vac 0.94	0.98 0.92
		Add Leakage Current in Input Specifications	/	Max. 0.5 mA At 277Vac 50Hz input
		Change Inrush Current	20A	60A
		Add No Load Output Voltage	/	The max. value of every model.
		Change Ripple and Noise	Max. 25% V _O	The max. value of every model.
		Change Turn-on Delay Time	110Vac Typ. 1.7S 220Vac 0.7S	Typ. 2.5S Max. 3.0S 1.5S 2.0S
		Delete Output Overshoot / Undershoot	Max. 10%	/
		Change the efficiency (220Vac) I _O = 350 mA	Typ. 89%	Typ. 88%
		Change Operating Temperature	Max. +70 °C	Max. +60 °C
		Change the Max. Ambient Temperature in Derating Curve	+70 °C	+60 °C
		Change linearity of dimming curve	/	/
		Change the notes in Dimming Control	/	/
2010-05-31	C	Add star rank for recommended models	/	☆: Popular model.
2010-07-30	D	Add Energy Star Standard	/	Comply With ANSI/IEEE C62.41, Class A Operation
2010-10-14	E	Change the notes in Dimming Control	/	/
		Add FCC Part15 Class B	/	FCC Part 15 Class B, ANSI C63.4: 2009.
2011-01-14	F	Change popular models	/	/
2011-06-27	G	Net Weight	300g	360g
2011-07-29	H	Lightning Protection	/	Deleted
2012-1-6	I	Output Current Range	/	Deleted
		Output Current Tolerance	/	Added
2012-7-17	J	Max Case Temperature	/	Updated

2012-11-13	K	PF Curve (700 mA)	/	Added
		THD Curve (700 mA)	/	Added
2013-08-05	L	Mechanical Outline-dimming wire size	/	Corrected
2013-11-25	M	Mechanical Outline-Dimming wires updated	UL1015 26AWG	UL1015 22AWG
		No-load Output Voltage	/	Corrected