

Features

- High Efficiency (Up to 88%)
- Active Power Factor Correction (Typical 0.92)
- Constant Output Current
- Lightning Protection
- Waterproof (IP66)
- Dimming Control
- All-Round 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 Series operate from a 90 ~ 305 Vac input range. These units will provide up to a 3330 mA of output current and a maximum output voltage of 114 V for 40 W maximum output power. 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	Max. Output Voltage	Max. Output Power	Typical Efficiency (1)	Power Factor		Model Number With Dimming Control (2, 3)	Model Number Without Dimming Control (2, 3)
					110Vac	220Vac		
3330 mA	90 ~ 305 Vac	11 Vdc	35 W	84%	0.98	0.92	EUC-040S333DS(6)	EUC-040S333PS(6)
2220 mA	90 ~ 305 Vac	16 Vdc	36 W	85%	0.98	0.92	EUC-040S222DS(6)	EUC-040S222PS(6)
1660 mA	90 ~ 305 Vac	23 Vdc	38 W	86%	0.98	0.92	EUC-040S166DS(6)★	EUC-040S166PS(6)★
1400 mA	90 ~ 305 Vac	25 Vdc	36 W	87%	0.98	0.92	EUC-040S140DS(6)	EUC-040S140PS(6)★
1280 mA	90 ~ 305 Vac	29 Vdc	38 W	87%	0.98	0.92	EUC-040S128DS(6)	EUC-040S128PS(6)
1050 mA	90 ~ 305 Vac	36 Vdc	38 W	87%	0.98	0.92	EUC-040S105DS(6)★	EUC-040S105PS(6)★
700 mA	90 ~ 305 Vac	54 Vdc	38 W	87%	0.98	0.92	EUC-040S070DS(5)★	EUC-040S070PS(5)★
450 mA	90 ~ 305 Vac	89 Vdc	40 W	88%	0.98	0.92	EUC-040S045DS(4)★	EUC-040S045PS(4)
350 mA	90 ~ 305 Vac	114 Vdc	40 W	88%	0.98	0.92	EUC-040S035DS(4)★	EUC-040S035PS(4)★

- 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 –xxx 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).
 - (7) ★: Popular model.

Specifications are subject to changes without notice.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.5 mA	At 277Vac 50Hz 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 Range				
$I_o = 3330$ mA	3164 mA	-	3497 mA	
$I_o = 2220$ mA	2109 mA	-	2331 mA	
$I_o = 1660$ mA	1577 mA	-	1743 mA	
$I_o = 1400$ mA	1330 mA	-	1470 mA	
$I_o = 1280$ mA	1216 mA	-	1344 mA	
$I_o = 1050$ mA	998 mA	-	1103 mA	
$I_o = 700$ mA	665 mA	-	735 mA	
$I_o = 450$ mA	428 mA	-	473 mA	
$I_o = 350$ mA	333 mA	-	368 mA	
Output Voltage Range				
$I_o = 3330$ mA	4 V	-	11 V	
$I_o = 2220$ mA	6 V	-	16 V	
$I_o = 1660$ mA	8 V	-	23 V	
$I_o = 1400$ mA	10 V	-	25 V	
$I_o = 1280$ mA	10 V	-	29 V	
$I_o = 1050$ mA	12 V	-	36 V	
$I_o = 700$ mA	18 V	-	54 V	
$I_o = 450$ mA	30 V	-	89 V	
$I_o = 350$ mA	38 V	-	114 V	
No Load Output Voltage				
$I_o = 3330$ mA	-	-	17 V	
$I_o = 2220$ mA	-	-	22 V	
$I_o = 1660$ mA	-	-	30 V	
$I_o = 1400$ mA	-	-	35 V	
$I_o = 1280$ mA	-	-	35 V	
$I_o = 1050$ mA	-	-	41 V	
$I_o = 700$ mA	-	-	61 V	
$I_o = 450$ mA	-	-	98 V	
$I_o = 350$ mA	-	-	127 V	
Ripple & Noise				
$I_o = 3330$ mA	-	-	3 V	Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 104/500V ceramic capacitor and a 10uF/200V electrolysis capacitor
$I_o = 2220$ mA	-	-	3 V	
$I_o = 1660$ mA	-	-	3 V	
$I_o = 1400$ mA	-	-	3 V	
$I_o = 1280$ mA	-	-	3 V	
$I_o = 1050$ mA	-	-	5 V	
$I_o = 700$ mA	-	-	5 V	
$I_o = 450$ mA	-	-	5 V	
$I_o = 350$ mA	-	-	5 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.

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Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection				Hiccup mode. The power supply shall be self-recovery when the fault condition is removed.
$I_o = 3330 \text{ mA}$	15 V	16 V	17 V	
$I_o = 2220 \text{ mA}$	21 V	23 V	25 V	
$I_o = 1660 \text{ mA}$	28 V	30 V	32 V	
$I_o = 1400 \text{ mA}$	31 V	34 V	37 V	
$I_o = 1280 \text{ mA}$	31 V	34 V	37 V	
$I_o = 1050 \text{ mA}$	38 V	41 V	42 V	
$I_o = 700 \text{ mA}$	59 V	59 V	60 V	
$I_o = 450 \text{ mA}$	95 V	98 V	101 V	
$I_o = 350 \text{ mA}$	124 V	127 V	130 V	
Over Load Protection	-	1.25 Vmax	-	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				Measured at full load and 110 Vac input.
$I_o = 3330 \text{ mA}$	82%	83%	-	
$I_o = 2220 \text{ mA}$	83%	84%	-	
$I_o = 1660 \text{ mA}$	84%	85%	-	
$I_o = 1400 \text{ mA}$	85%	86%	-	
$I_o = 1280 \text{ mA}$	85%	86%	-	
$I_o = 1050 \text{ mA}$	85%	86%	-	
$I_o = 700 \text{ mA}$	85%	86%	-	
$I_o = 450 \text{ mA}$	86%	87%	-	
$I_o = 350 \text{ mA}$	86%	87%	-	
Efficiency				Measured at full load and 220 Vac input.
$I_o = 3330 \text{ mA}$	83%	84%	-	
$I_o = 2220 \text{ mA}$	84%	85%	-	
$I_o = 1660 \text{ mA}$	85%	86%	-	
$I_o = 1400 \text{ mA}$	86%	87%	-	
$I_o = 1280 \text{ mA}$	86%	87%	-	
$I_o = 1050 \text{ mA}$	86%	87%	-	
$I_o = 700 \text{ mA}$	86%	87%	-	
$I_o = 450 \text{ mA}$	87%	88%	-	
$I_o = 350 \text{ mA}$	87%	88%	-	
No Load Power Dissipation	≤ 6 W			
MTBF	487,000 hours			For 3330 mA output model, measured at 110Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F).
Life Time	77,000 hours			For 3330 mA output model, measured at 110Vac input, 80%Load and 45°C ambient temperature
Dimensions				
Inches (L x W x H)	3.74 x 2.76 x 1.26			
Millimeters (L x W x H)	95 x 70 x 32			
Net Weight	-	300 g	-	

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

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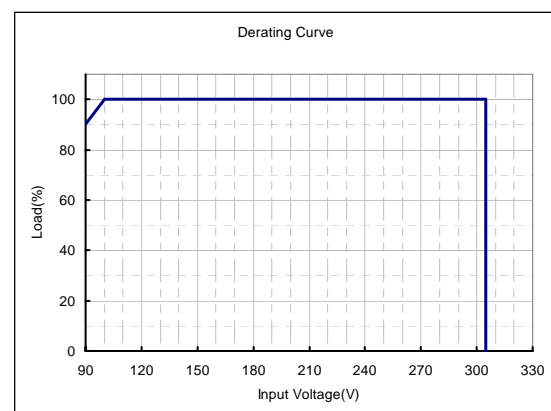
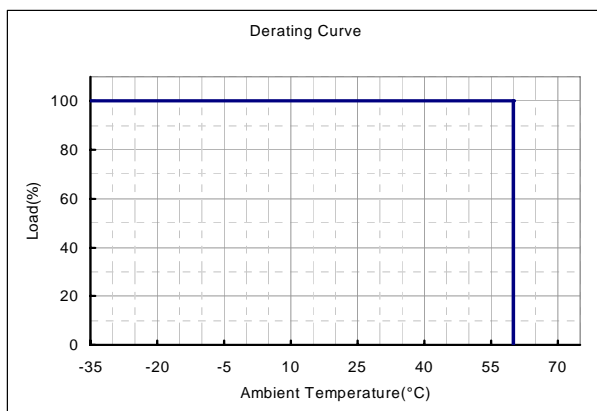
Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-20 °C	-	+60 °C	Humidity: 10% RH to 100% RH
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH

Safety & EMC Compliance

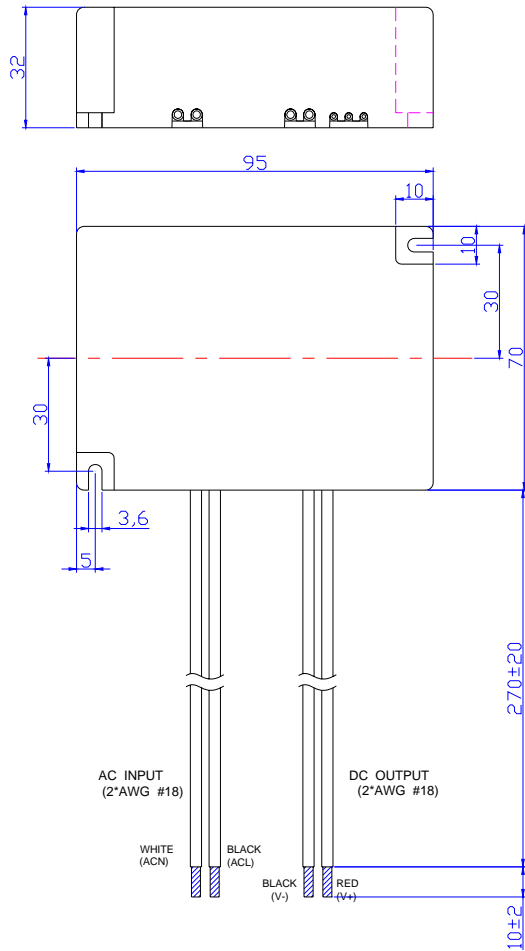
Safety Category	Country	Standard
CUL	USA & Canada	UL8750, UL935, UL1012, UL1310 Class 2, CSA-C22.2 No. 107.1, CSA C22.2 NO. 223-M91 Class 2
CE	Europe	EN 61347-1, EN61347-2-13
EMI Standards	Country	Notes
EN 55015	Europe	Conducted emission Test & Radiated emission Test with 6 dB margin
FCC	USA	FCC Part 15 Class B, ANSI C63.4: 2009.
EMS Standards	Notes	
EN 61000-3-2	Harmonic current emissions	
EN 61000-3-3	Voltage fluctuations & flicker	
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

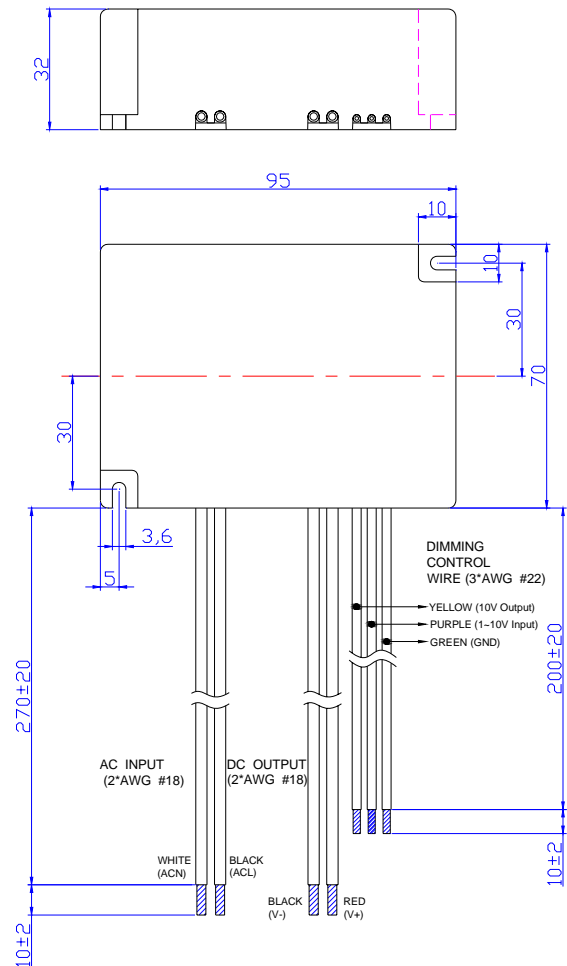


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Mechanical Outline



EUC-040SxxxPS

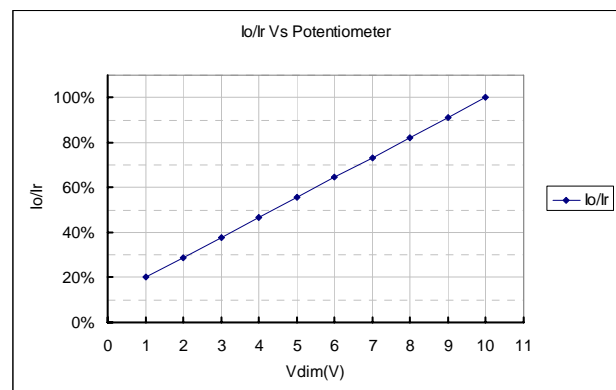
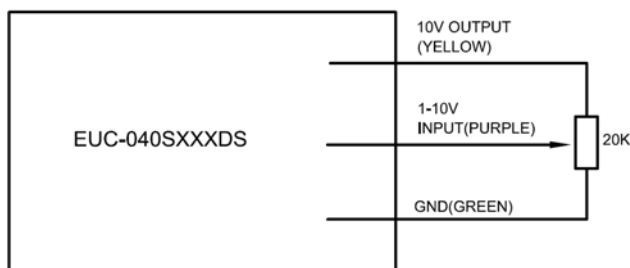


EUC-040SxxxDS

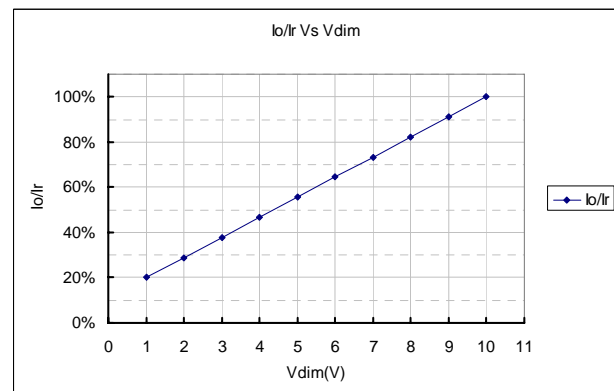
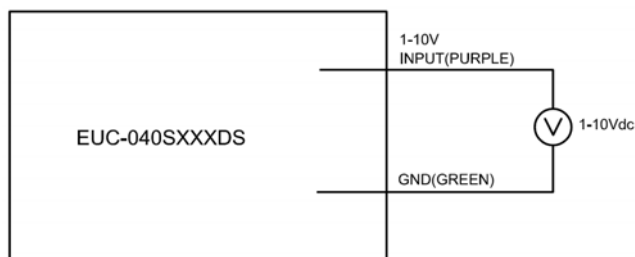
Dimming Control (On secondary side)

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. I_o is actual output current and I_r is rated current.
2. 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% I_r when the 1-10V input pin is floating.
3. 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).
4. The dimming voltage can be tuned down to less than 1V, and the output current will be decreased to about 10% I_r ; but the connected LEDs may flicker. Keeping dimming voltage greater than 1V in application is strongly recommended.
5. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

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RoHS Compliance

Our products comply with the European Directive 2002/95/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	Typ. Max. 110Vac 1.7S 2.0S 220Vac 0.7S 1.0S	Typ. Max. 2.5S 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	2. If the input voltage is within 90-175Vac, the output current can be varied from 100% down to 10%. 3. If the input voltage is within 175-305Vac, the output current can be varied from 100% down to 20%.	2. If the Dimming voltage is varied from 10V down to 0V, the output current can be varied from 100%I _o down to 10%~20%I _o . 3. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.		
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.

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