Features

- Ultra High Efficiency (Up to 94%)
- Constant Current Output
- 0-10V Dimming Control
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OVP, SCP, OTP
- IP67

CE CB

Description

The *EBC-420Sxxx(DV)SV* series is a 420W, constant-current LED driver that operates from 176-305 Vac input with excellent power factor. It is created for many lighting applications including high bay, high mast, arena and roadway. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.

Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor (2)	Model Number
1050 mA	176 ~ 305 Vac	260~400Vdc	420 W	94.0%	0.95	EBC-420S105DV(SV)
1400 mA	176 ~ 305 Vac	195~300Vdc	420 W	94.0%	0.95	EBC-420S140DV(SV)

Notes: (1) Certified input voltage range: 200-240Vac
(2) Measured at 100% load and 220Vac input.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	176 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC 60598-1; 240Vac/ 60Hz, grounding effectively
Input AC Current	-	-	2.40 A	Measured at 100% load and 220Vac input.
Inrush Current(I^2t)	-	-	1.60 A^2s	At 220Vac input, 25°C cold start, duration=2.8 ms, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.90	-	-	At 220-240Vac, 50-60Hz, 65%-100% Load (273-420W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io		5%Io	At 100% load condition.
Total Output Current Ripple (pk-pk)	-	5%Io	10%Io	At 100% load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%Io	-	At 100% load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%Io	At 100% load condition.
No-load Output Voltage I_O = 1050 mA I_O = 1400 mA	- -	- -	440 V 330 V	
Line Regulation	-	-	±0.5%	Measured at 100% load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	0.5 s	Measured at 220Vac input, 65%-100% Load
Temperature Coefficient	-	-	0.03%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	10.8 V	12 V	13.2 V	
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is “Dim−“

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 220 Vac input: I_O = 1050 mA I_O = 1400 mA	 92.0% 92.0%	 94.0% 94.0%	 - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	227,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	76,000 Hours	-	Measured at 220Vac input, 80%Load and 70°C case temperature; See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-40°C		+75°C	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	8.82 × 3.86 × 1.75 224 × 98 × 44.5			With mounting ear 9.88 × 3.86 × 1.75 251 × 98 × 44.5
Net Weight	-	1850 g	-	

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+)Pin	100 uA	140 uA	180 uA	
Dimming Output Range	10%I_O	-	100%I_O	
Recommended Dimming Input Range	0 V	-	10 V	

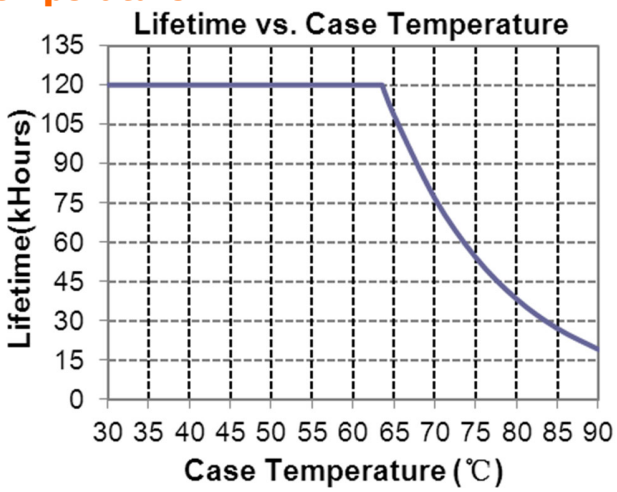
Safety &EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
EMI Standards	**Notes**
EN IEC 55015(1)	Conducted emission Test &Radiated emission Test
EN IEC 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
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 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 6 kV, Common Mode 10 kV(2)
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

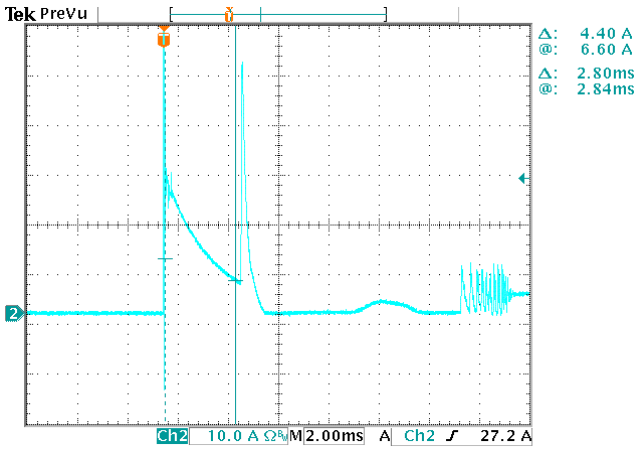
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(2) To perform electric strength (hi-pot) testing, the “GDT ground disconnect” (screw and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

Lifetime vs. Case Temperature

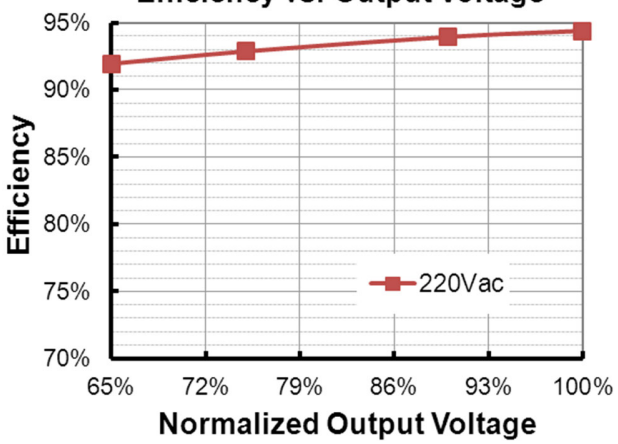


Inrush Current Waveform

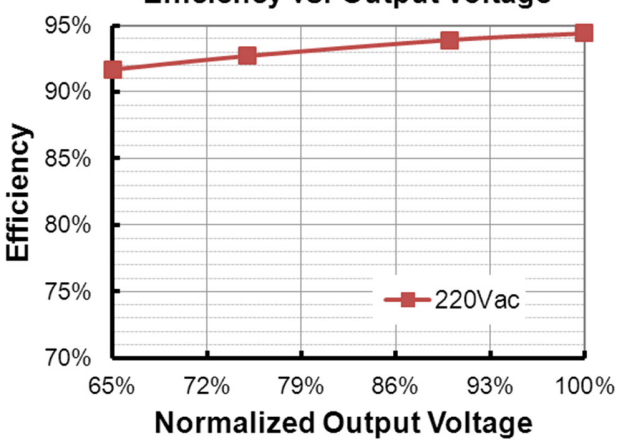


Efficiency vs. Load

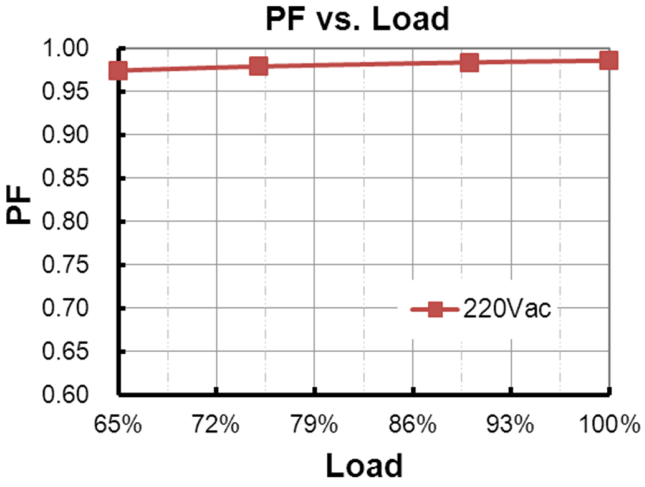
EBC-420S105DV(SV)(Io=1050mA)



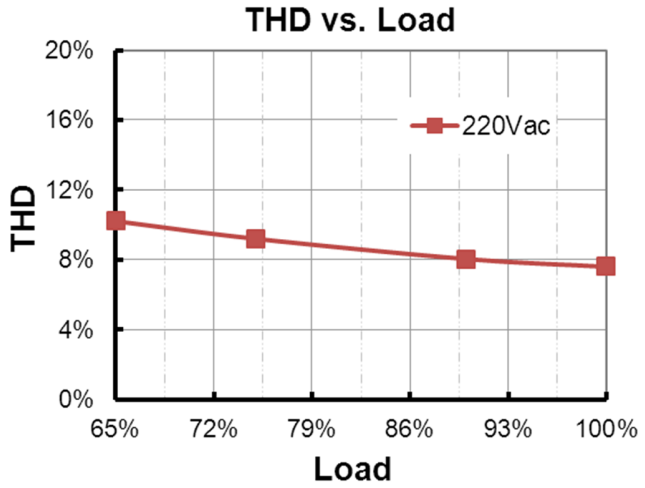
EBC-420S140DV(SV)(Io=1400mA)



Power Factor



Total Harmonic Distortion

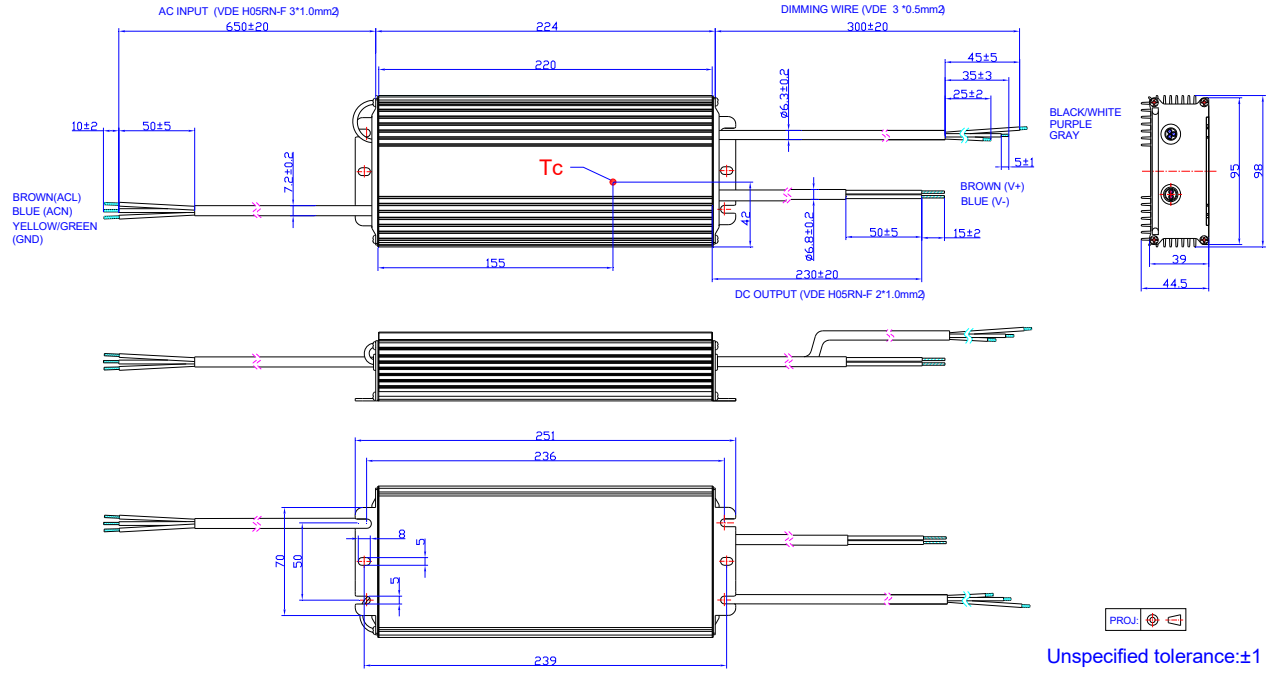


Protection Functions

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

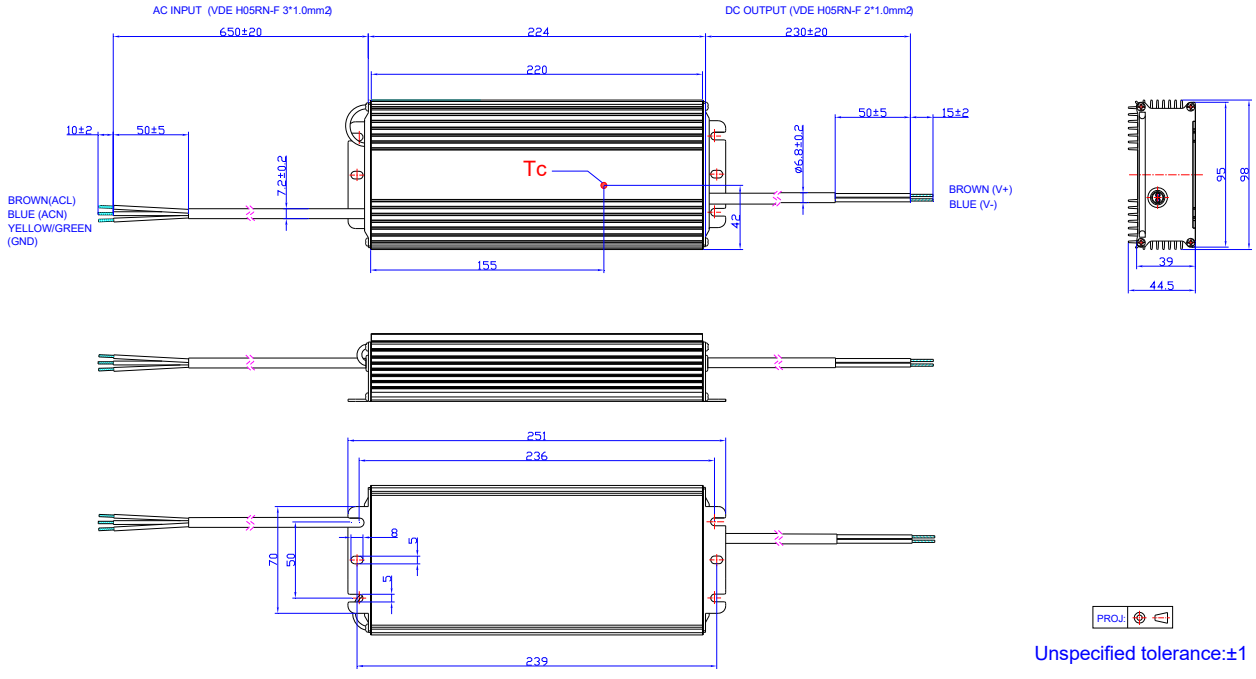
Mechanical Outline

EBC-420SxxxDV



Unspecified tolerance:±1

EBC-420SxxxSV



Unspecified tolerance:±1

Note: Waterproof connectors certified to CE are also available for these drivers; please contact Inventronics Sales.

RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, 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
2016-03-07	A	Datasheets Release	/	/
2023-08-24	B	TUV logo	/	Deleted
		Product Photograph	/	Updated
		Safety &EMC Compliance	/	Updated
2024-08-13	C	Format	/	Updated
		CCC logo	/	Deleted
		Models	Notes (1)	Updated
		Safety &EMC Compliance	/	Updated
		Mechanical Outline	/	Updated