

Model

LS720A-RH

RoHS COMPLIANT

12 Volt Input

Dual Tube CCFT Inverter (8W)

Brightness Control (PWM Dimming 20-100%)



Physical Specifications

Dimensions:	25mm x 125mm x 10mm (0.98" x 4.92" x 0.39")
Operating Temp:	0 to 60°C, convection cooling
Relative Humidity:	20% to 90%, non-condensing
Storage:	-20 to 80°C/5-95% RH
Impact Resistance:	50G half wave per 2 msec
Vibration Resistance:	10-55-10 Hz/min @ 1.5mm

Input Specifications*

Item	Condition	Standard		
		MIN	TYP	MAX
Input Voltage Rated Tolerance	—	12 Vdc		
	Continuous Operation Starting Condition (Discharge Starting Voltage)	10.8 Vdc - 13.2 Vdc		
Max. Input Current	V _{IN} = 10.8 Vdc Luminance @ Max.	1.0 A		
Max. Input Power	V _{IN} = 12 Vdc Luminance @ Max.	12 W		
On/Off Input Current	On V _{CONT} = 2.0-V _{CC} Vdc	I _{MAX} = 4.0 mA		
	Off V _{CONT} = -0.3 Vdc to +0.8 Vdc	I _{MAX} = 50 µA		
DC-Bright	I _{OUT} = Max	3.8 V		
	I _{OUT} = Min	2.0 V		
PWM Bright Duty Ratio	t _{ON} / t _{BC} Max t _{ON} / t _{BC} Min	1.00 0.30		
PWM Bright Pulse Frequency	1 / t _{BC}	400 Hz 380 ~ 420 Hz		

*Above Specifications Occur @ 25 ± 5°C

Output Specifications*

Item	Condition	Standard		
		MIN	TYP	MAX
Output Voltage (Vrms)	V _{IN} = 10.8 Vdc	1500	1650	—
Tube Current for 2 Lamps (mArms)	Luminance @ Max. (V _{IN} = 12.0 Vdc)	10.4	12.0	13.6
	Luminance @ Min. (V _{IN} = 12.0 Vdc)	—	7.0	—
Max. Power Output for 2 Lamps (W)	V _{IN} = 12 Vdc/Luminance @ Max.	—	—	8.0
Ignition Frequency (kHz)	Luminance @ Min.-Max., V _{IN} = 12.0 Vdc	50	60	70

*Above specifications occur @ 25 ± 5°C & V_{IN} = 10.8 - 13.2 Vdc.

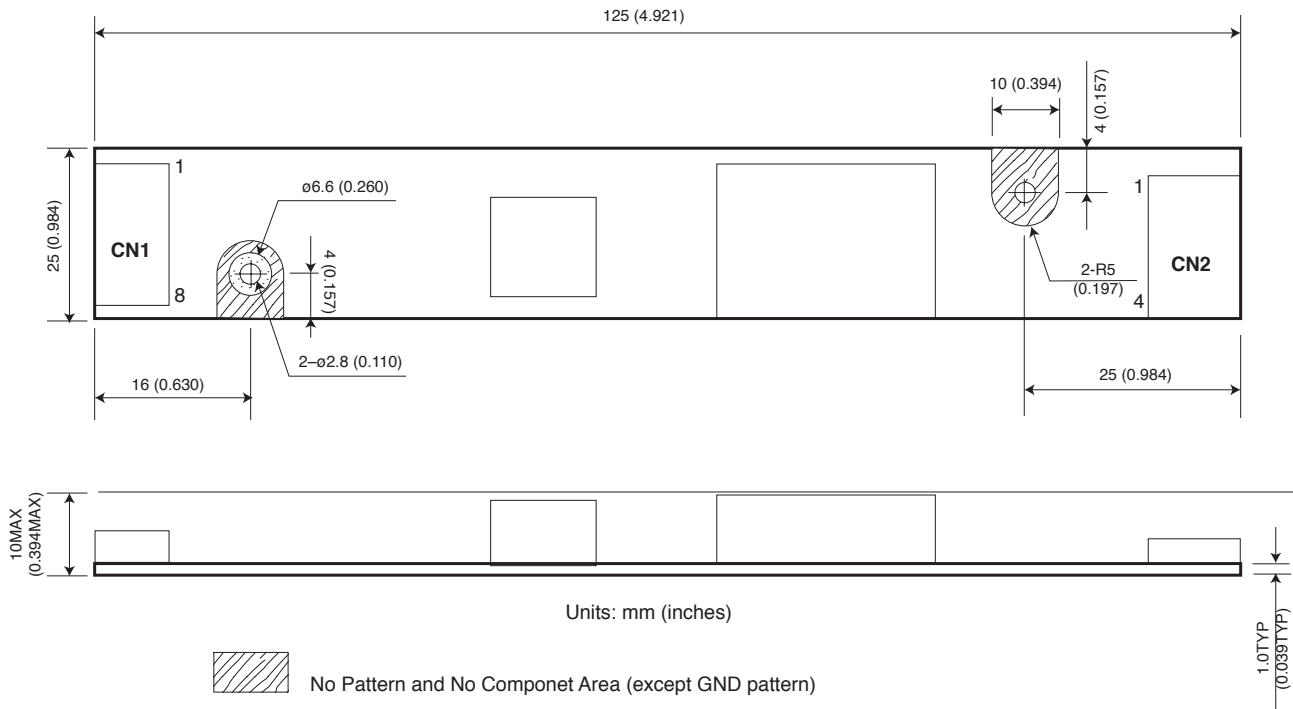
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Luminance Variance

Item	Condition	DC Bias Control	Output Current
Luminance @ Max.	Btwn. pin 4 & 6	Vcont = 3.8 V	12 mA (2 lamps)
Luminance @ Min.	Btwn. pin 4 & 6	Vcont = 2.0 V	6.5 mA (2 lamps)

* Luminance can also be controlled by applying PWM signal to pin 5 (pin 4 must be connected to GND).



Units: mm (inches)

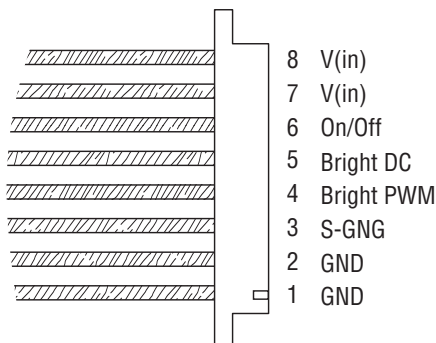
CN1 Input Connector

Hirose DF13-8P-1.25H
(pin number 8 is marked on PCB)

V(in)	1
V(in)	2
On/Off	3
Bright DC	4
Bright PWM	5
S-GNG	6
GND	7
GND	8

CN1 Corresponding Housing

Hirose DF13-8S-1.25C
(Hirose Connector Pin Numbers)



CN2 Output Connector

JST SM03 (7-D1) B-BHS-1-TB(LF)

CCFT HIGH	1
CCFT HIGH	2
NC	3
CCFT LOW	4

CN2 Corresponding Housing

JST BHR-04VS-1

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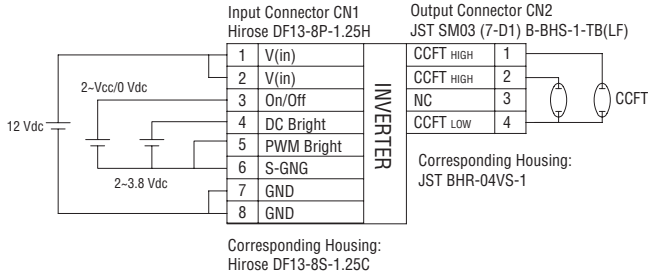
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Tech Notes

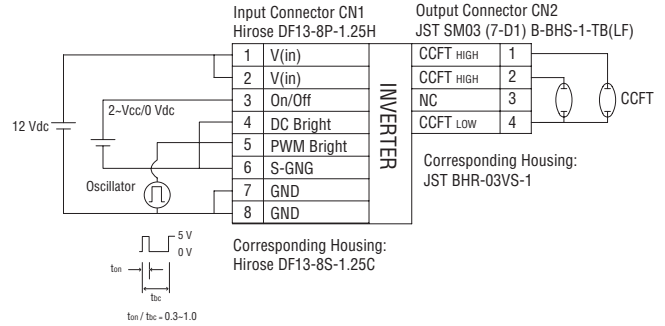
Connection Diagram

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DC Bright Control Connection

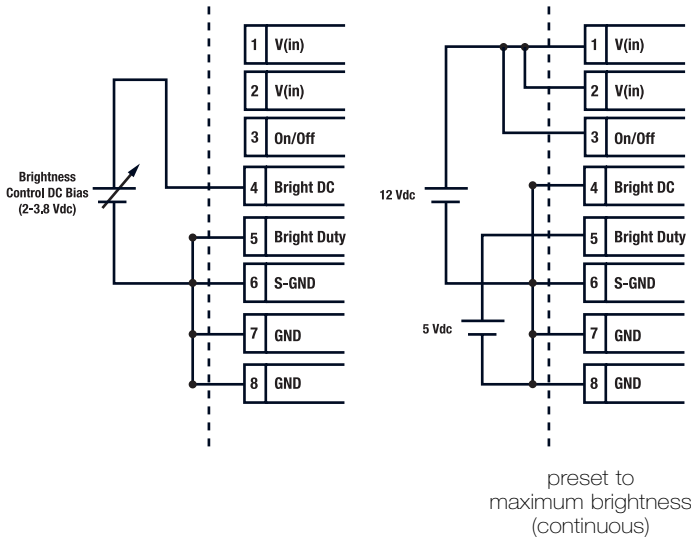


PWM Bright Control Connection



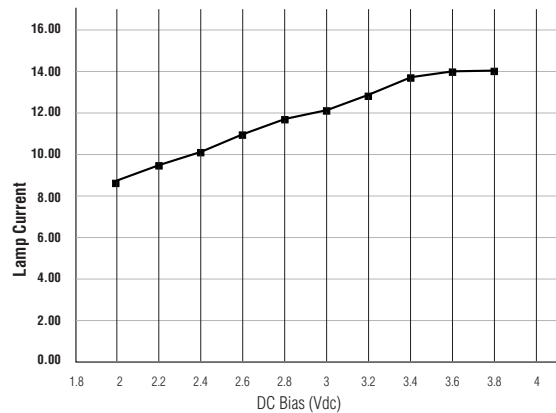
DC Bright Control Method

Maximum output current can be adjusted by applying bias voltage between brightness control pins as shown below.



DC Bias vs Lamp Current (2 lamps)

DC Bias	Lamp Current (2 lamps)
2.0 V	6.88 mA
2.2 V	7.86 mA
2.4 V	8.60 mA
2.6 V	9.25 mA
2.8 V	9.88 mA
3.0 V	10.40 mA
3.2 V	11.00 mA
3.4 V	11.80 mA
3.6 V	12.10 mA
3.8 V	12.10 mA
4.0 V	12.10 mA



* Above specifications occur @ 25 ± 5°C, with pin 5 connected to GND, and $V_{IN} = 12$ Vdc using NEC NL panel.

On/Off Control

The inverter is ON if one of the following conditions are met:

- Pin 3 (On/Off) is connected to pin 1/2 (V_{IN})
- Pin 3 (On/Off) = 2 Vdc — 13.2 Vdc

The inverter is OFF if one of the following conditions are met:

- Pin 3 (On/Off) is connected to pin 7/8 (GND)
- Pin 3 (On/Off) ≤ 0.8 Vdc

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