



FHCS-UNV3-20P-40C



Emergency LED Driver

- Universal Voltage: 100-347V~
- U-Out: 60V
- Output Current: 55-1430mA
- Output Wattage: 20W Max
- Output/Test switch: LED Class 2/Class 2
- Number of Output Channels: 1 Channel
- Dry and Damp

General Specifications

Input Voltage / Frequency	100-347V~, 50/60Hz
Input Current	0.25A Max
Input Power	25W Max, 5W Max(Heater Off)
Standby Input Power	<0.85W
Input Power Pass-Through Rating (AC Driver Line)	5A
Max Output Rating (LED+ LED-Terminal)	3A, 55V Max
Output Type	LED Class 2
Output Power	20W @ -20°C~55°C(-4°F~131°F) 14W @ -30°C~55°C(-22°F~131°F) 8W/12W @ -40°C~55°C(-40°F~131°F)
Output Voltage Range	14-55V ~
Output Current Rated	55-1430mA
Number of Output Channels	1Channel
Input Surge Protection	3KV/6KV Ring Wave
Protections	Output Open Protection Output Overload Protection Output Short Circuit Protection
RFI/EMI	FCC Part 15A
Ambient Operating Temperature Rang	Refer to Figure 1, 2, 3
Tc	68.5°C (155. 3°F)
Sound Rating	A
Battery Type	LiFePO4
Battery Voltage	9.6V
Pack Capacity	4000mAh
Battery Rating	38.4Wh
Battery Count	3 Cells
Battery Recharge Time	24 Hours
Battery Discharge Time	Min 1.5 Hours
Test Switch Remote Mounting Distance	20' (6m) Max.
Service Life	50,000 hours
Warranty	5 years
Safety Standard	UL 924, UL 1310, CSA C22.2 No.141



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Emergency power derating table with ambient temperature

DIP switch setting 20W position

Figure 1

TPSB-100 setting EM Power	$-20^{\circ}\text{C} \leq T_a \leq 55^{\circ}\text{C}$		$-30^{\circ}\text{C} \leq T_a < -20^{\circ}\text{C}$		$-40^{\circ}\text{C} \leq T_a < -30^{\circ}\text{C}$	
	0-7 minutes	7-90 minutes	0-7 minutes	7-90 minutes	0-7 minutes	7-90 minutes
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	8
10	10	10	10	10	10	8
11	11	11	11	10	11	8
12	12	12	12	10	12	8
13	13	13	13	10	12	8
14	14	13	14	10	12	8
15	15	13	14	10	12	8
16	16	13	14	10	12	8
17	17	13	14	10	12	8
18	18	13	14	10	12	8
19	19	13	14	10	12	8
20	20	13	14	10	12	8

DIP set up to 20W. Whatever the TPSB's setting the max EM power is 20W

Note: There are two states of 14W: ① When the ambient temperature is higher than -20°C , set to 14W by the setting box.

② When the ambient temperature is $-30^{\circ}\text{C} \sim -20^{\circ}\text{C}$, set to above 14W, the power will be automatically reduced to 14W when the power is set above 14W.

DIP switch setting 12W position

Figure 2

TPSB-100 setting EM Power	$-20^{\circ}\text{C} \leq T_a \leq 55^{\circ}\text{C}$		$-30^{\circ}\text{C} \leq T_a < -20^{\circ}\text{C}$		$-40^{\circ}\text{C} \leq T_a < -30^{\circ}\text{C}$	
	0-7 minutes	7-90 minutes	0-7 minutes	7-90 minutes	0-7 minutes	7-90 minutes
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	8
10	10	10	10	10	10	8
11	11	11	11	10	11	8
12	12	12	12	10	12	8
13	12	12	12	10	12	8
14	12	12	12	10	12	8
15	12	12	12	10	12	8
16	12	12	12	10	12	8
17	12	12	12	10	12	8
18	12	12	12	10	12	8
19	12	12	12	10	12	8
20	12	12	12	10	12	8

DIP set up to 12W. Whatever the TPSB's setting the max EM power is 12W



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Emergency power derating table with ambient temperature

DIP switch setting 8W position

Figure 3

	-40°C ≤ Ta ≤ 55°C	
TPSB-100 setting EM Power	0-7 minutes	7-90 minutes
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	8	8
10	8	8
11	8	8
12	8	8
13	8	8
14	8	8
15	8	8
16	8	8
17	8	8
18	8	8
19	8	8
20	8	8

DIP set up to 8W. Whatever the TPSB's setting the max EM power is 8W

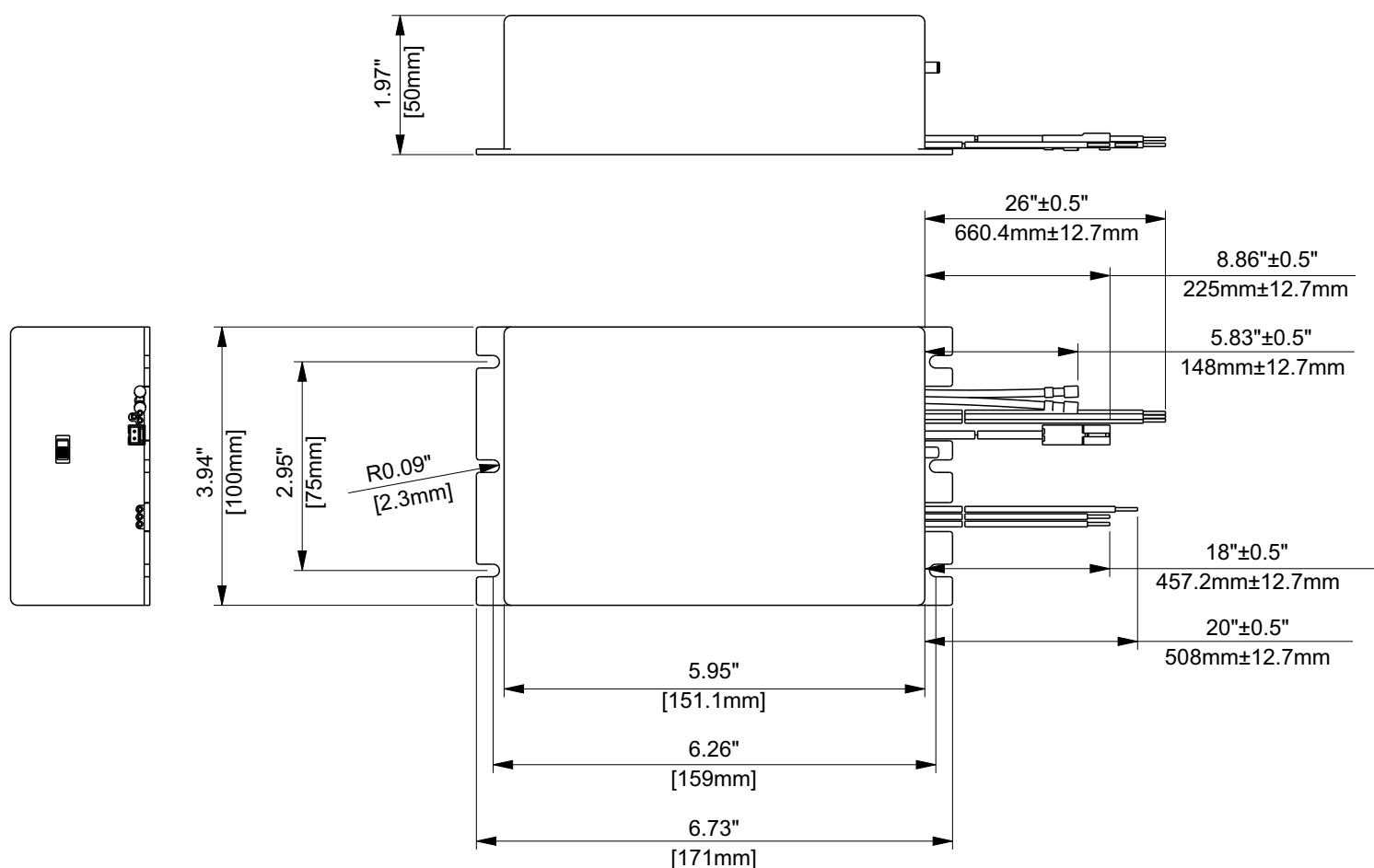


FHCS-UNV3-20P-40C



Mechanical Data

Overall Dimensions	
Length	6.73" [171mm]
Width	3.94" [100mm]
Height	1.97" [50mm]



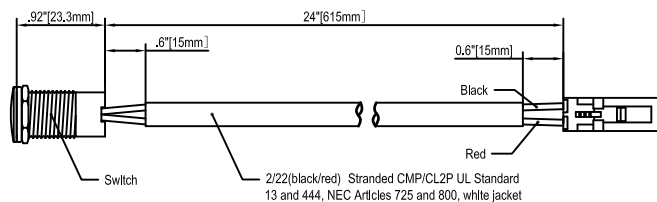


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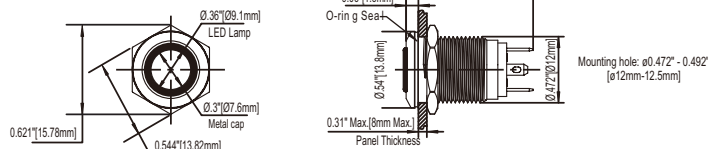


Accessories

Bi-Color Wet Location Test Switch: FHS-TSTWL-BC

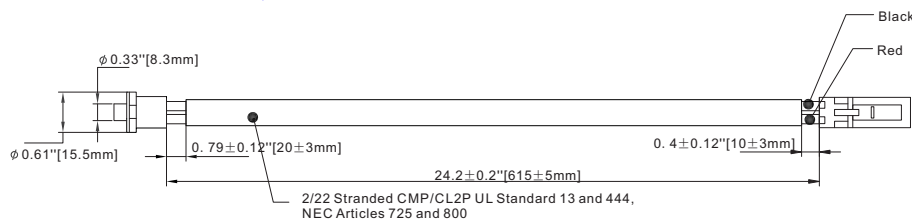


Overall Switch Dimension



Optional Accessories

Test switch wire: FHS-TST-BC(IP20)





RoHS
COMPLIANT



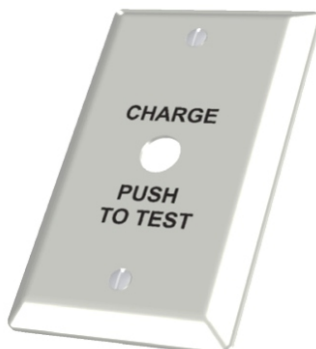
Optional Accessories

Wall Plate: FHSWLPWH

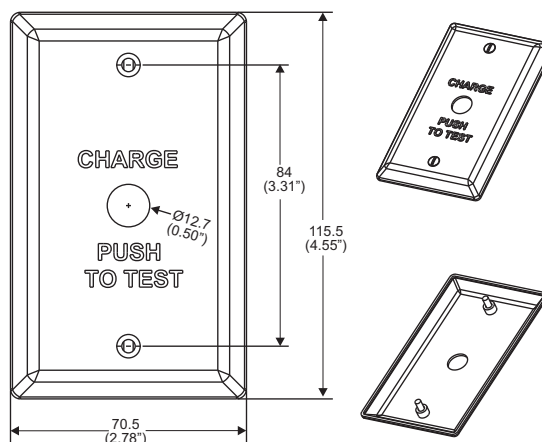


Wall plate and screw color:
white with black lettering

Wall Plate: FHSWLPPWH(Pure White Wall Plate)



Wall plate and screw color:
Pure white with black lettering



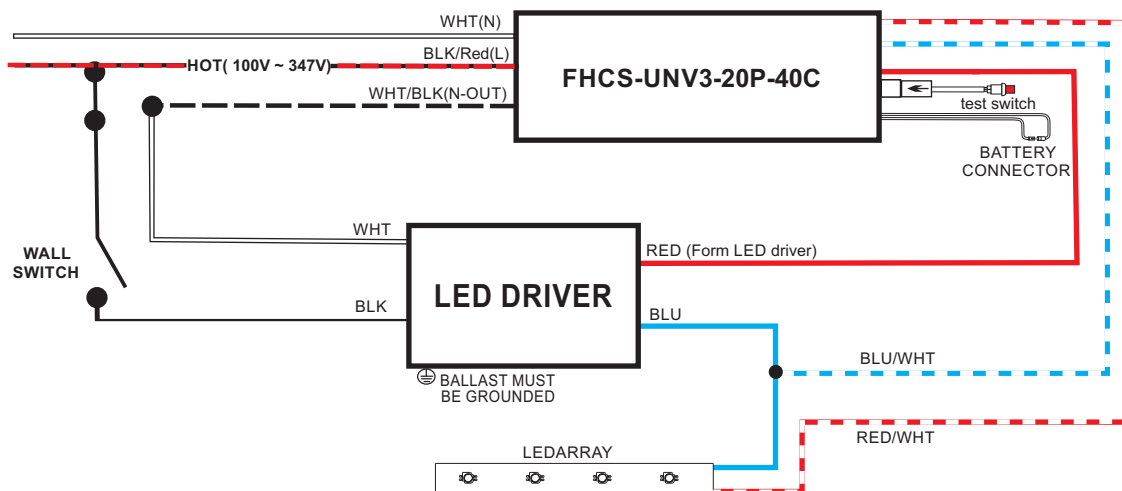
1. "Charge push to Test" plate
2. (2) 6-32 x 1/2" LG mounting screws



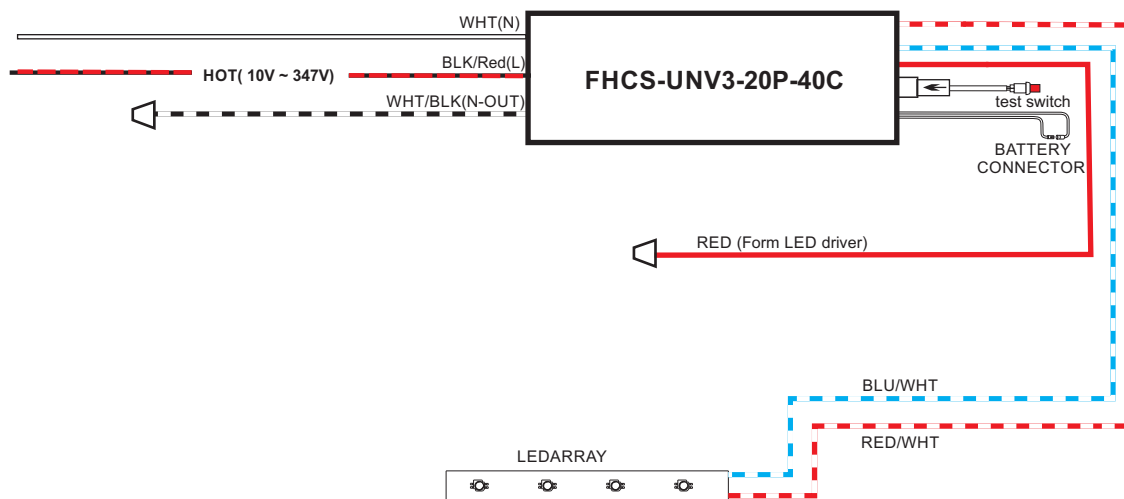
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Wiring Diagram



Wiring Diagram (Emergency Only)





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SELF-DIAGNOSTIC INSTRUCTIONS / OPERATION:

If the self-diagnostic feature is enabled:

The emergency LED driver will conduct a self-check for sixty(60) seconds every thirty(30) days; and a ninety(90) minutes self-check every 12 months. After every self-check the LED indicator light will indicate a status signal. Check indicator status chart below to diagnose the status signal.

If the self-diagnostic feature is disabled:

User must conduct a manual test every thirty (30) days to ensure the emergency LED light source illuminates as intended. A full discharge test shall be conducted once a year; the LED light source shall illuminate for a minimum of ninety (90) minutes.

***Self-Diagnostic feature is factory enabled**

TEST SWITCH INDICATOR STATUS:

LED Indicators Status	EM Driver Status / Mode
● Solid Green	System OK/AC OK.
⦿ Slow Flashing Red, 4s on/1s off	Battery PACK not found.(Including Self-test/self-diagnostic)
⦿ Flashing Red, 1s on/1s off	Battery PACK fault. (Including Self-test/self-diagnostic)
⦿ Flashing Green, 1s on/1s off	Self-diagnose process ongoing.
⦿ Slow Flashing Green, 0.1s on/3s off	Normal working in EM mode. (Including Self-test/self-diagnostic)
⦿ Flashing Red, 4s on/4s off	No load or output over voltage protection triggered, check LED connection. (Including Self-test/self-diagnostic)
● Solid Red	Over current protection. (Including Self-test/self-diagnostic)
⦿ Flashing Green, 2s on/0.5s off	Self-diagnose enabled.
⦿ Flashing Green, 0.5s on/2s off	Self-diagnose disabled.
⦿ Flashing Red, 0.5s on/3s off	Self-diagnose process current fault or Battery voltage <87.5%.
⦿ Flashing Red, 4s on/4s off	Automatic load transfer system functionality error.(Including Self-test /self-diagnostic)

TEST SWITCH OPERATIONS

EM Test:

Press and hold the test button (>1s) to enter EM mode in normal AC powered.

Manual Self-Diagnostic:

After charging twelve (12) hours at least, quickly press the test button three(3) times to force the controller to enter Self-Diagnostic cycle. To quit the Self-Diagnostic cycle after engaged, press and hold the test button for three (3) seconds.

Query Self-Diagnostic Status:

Fast click 2 times within 2s to query the Self-Diagnostic status. The indicator would blink for current status for 3 cycles. 2s ON/0.5s OFF stands for Enabled. 0.5s ON/2s OFF stands for Disabled.

How to Enable and Disable Self-Diagnostic Status:

Press and hold the test button for one second, then release, and press and hold the test button for 2 seconds.

Cancel reporting error:

When charging, press and hold the button for about 5s to cancel the error indication.

Emergency Battery Disconnect:

Press and hold the test switch for 5 seconds during EM output condition to turn off EM output. This is useful for production environment to turn off the EM output once a luminaire has completed functionality testing.



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Guidelines

Grounding

- Driver must be grounded by means of the Driver case.

Over temperature protection

- The Fulham's Hotspot Constant Power Emergency LED drivers are protected against thermal overload. If the temperature limit is exceeded, the output current is reduced.

LED load

- Fulham's Hotspot Constant Power Emergency LED drivers passive LEDs, -COB's and -LED assemblies Proper function is not guaranteed when (LED) loads with active components are used.

Mounting / Cooling

- Above an output power of 20W, the driver needs to be mounted on a heat conductive surface of at least 200cm². Always test if the surface is sufficient enough before installing the driver.

Short-circuit protection

- In case of a short circuit the LED driver switches to protection mode. After the removal of the short-circuit the LED driver will recover automatically.

No-load Operation

- In no-load operation the output voltage will not exceed the specified open circuit output voltage.

Hot Swapping

- This driver does not support hot swapping of the LEDs

Remote Mounting

- Up to 15ft with 18AWG. Contact Fulham for higher remote distance.

Battery Maintenance

- In order to maintain proper operation and warranty coverage, the battery must be recharged once per year prior to installation.

Warranty

- Reference Fulham's limited Warranty: <https://cdn.fulham.com/PDFs/Limited-Warranty.pdf>



FHCS-UNV3-20P-40C



Part Number Matrix

<u>FH</u>	<u>CS</u>	<u>UNV3</u>	<u>20</u>	<u>P</u>	<u>-40</u>	<u>C</u>
<u>LED Driver</u>	<u>Driver Type</u>	<u>Input Voltage</u>	<u>Power</u>	<u>Characteristic</u>	<u>Special Features</u>	<u>Characteristic</u>
FH = FireHorse Driver	CS = Cold Spot	UNV3= 100-347V	20= 20W	P= Programmble	-40C= -40°C	C= Compact form Factor

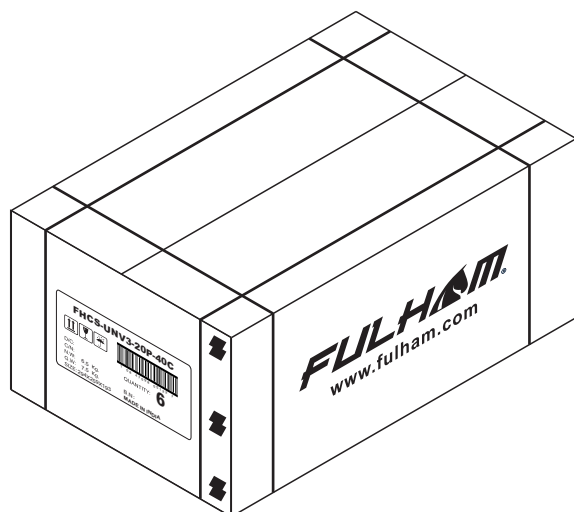
Product Image: LED Driver

FHCS-UNV3-20P-40C



Packaging

Master Carton



OUTER DIMENSION		
L	W	H
11.57" (294mm)	10.2" (259mm)	7.6" (193mm)
Net Weight	Gross Weight	QUANTITY
14.33lbs. (6.5kg.)	16.53lbs. (7.5kg)	6pcs.