

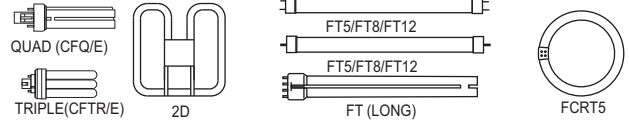
Project _____ Type _____ Model # _____

Remarks _____

Description: Firehorse Emergency Ballast for use with or without AC ballast designed to add emergency lighting when main AC power is interrupted for minimum of 90 minutes at reduced illumination. The emergency ballast is not intended for general purpose lighting applications. Complies with minimum light output for emergency lighting equipment as per UL 924, supplement "SH". Consult with factory when using EM Ballast with low mercury lamps (TCP).

This Ballast Will Operate Following Lamps.

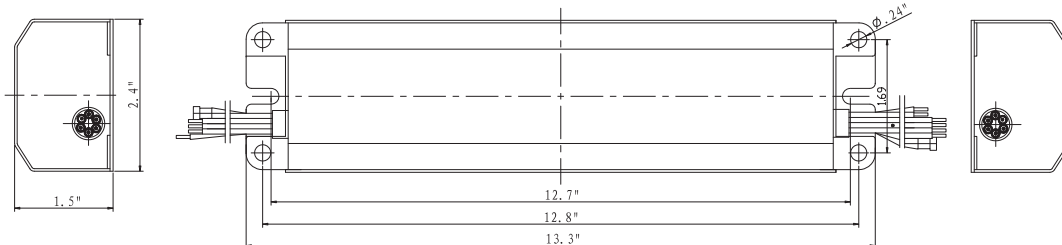
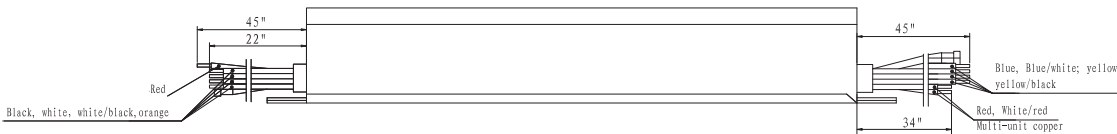
- 1 X F21T5, F28T5, F54T5HO, F25T8, F32T8, F40T8, F96T8SL(59W), F48T10VHO(110W), F40T12, F48T12HO(60W), F60T12HO, F60T12SL, F72T12HO, F72T12SL, F84T12HO(100W), F96T12HO(95W), F96T12HO(110W), F96T12SL(60W), F96T12SL(75W), FT36W, FT40W, FT55W, CFTR 18W, CFTR 26W, CFTR 32W, CFTR 42W, CFTR 57W, CFQ18W, 2D28W, 2D38W, CRT5 22W, CRT5 40W, CRT5 55W, CRT9 32W, CRT9 40W
- 2 X F17T8, F25T8, F32T8, F20T12, F30T12, F40T12, FT36W, CFTR 13W, CFTR 18W, CFTR 26W, CFQ 18W, CFQ 26W, 2D28W, 2D38W



ELECTRICAL DATA

BALLAST TYPE / OUTPUT TYPE	EMERGENCY
INPUT VOLTAGE	120V OR 277V ± 10%, 60 Hz
AC INPUT POWER RATING	3.1W @ 120V, 3.5 @ 277V
AC INPUT CURRENT RATING	320mA
BATTERY TYPE	MAINTENANCE FREE - HIGH TEMPERATURE RECHARGEABLE SEALED NI-CAD
BATTERY VOLTAGE	6.0Vdc
BATTERY CHARGING CURRENT	260mA Max.
BATTERY RATING	24.0Wh
BATTERY CAPACITY	4.0Ah
TEMPERATURE RATING (AMBIENT)	0°C TO 55°C (32°F TO 131°F)
MAX INITIAL LIGHT OUTPUT	1400 LUMENS
MINIMUM ILLUMINATION TIME	90 MINUTES
RECHARGE TIME	24 HOURS
TEST SWITCH TYPE	ILLUMINATED TEST SWITCH PILOT LIGHT
CHARGING INDICATOR LIGHT TYPE	LED
CASE PROFILE	13.3" L X 2.4" W X 1.5" H X 12.83" MOUNTING CENTER
CASE WEIGHT	3.0lbs.
CASE TYPE	VANDAL RESISTANT - SEALED
CASE CONSTRUCTION	PAINTED STEEL
WIRE CONNECTION	STANDARD WIRE LEADS
APPROVAL CLASS	UL / CUL - LISTED FOR DAMP LOCATION - FACTORY OR FIELD INSTALLATION
CODE COMPLIANCE	MEETS OR EXCEEDS UL924 - N.E.C AND NFPA 101 LIFE SAFETY CODE EMERGENCY OPERATING REQUIREMENT
AC COMPATIBILITY	ELECTRONIC FLUORESCENT - STANDARD AND DIMMING
LAMP COMPATIBILITY	FLUORESCENT SINGLE/BI-PIN/4-PIN WITHOUT INTEGRAL STARTER
LUMINAIRE COMPATIBILITY	INDOOR SWITCHED AND UN-SWITCHED TYPE
END OF LIFE (EOL) COMPATIBILITY	YES (TIME DELAY CIRCUIT)
WARRANTY	2 YEARS

MECHANICAL DATA



WIRE AND LENGTH				
BLACK	WHITE	WHT/BLK	OG	RED
22"±2"	22"±2"	22"±2"	22"±2"	45"±2"
WHITE and RED(WITH CONNECTOR)				
7.8"±2"				
BLUE	BLUE/WHT	YELL/BLK	YELLOW	
45"±2"	45"±2"	45"±2"	45"±2"	
RED/WHT and RED(Multi-unit copper)				
34"±2"				

APPLICATION

The FireHorse emergency ballast can be used to add emergency lighting with or without an AC ballast and with most fluorescent luminaires without affecting normal luminaire operation. The emergency ballast is designed for factory or field installation and can be mounted on top, inside, or remote from the luminaire.
If used in an emergency-only luminaire, no AC ballast is required. The FireHorse emergency ballast is not suitable for use in air handling heated air outlets, outdoor, wet, or hazardous locations. The emergency ballast should not be installed near gas or electric heaters. The FireHorse emergency ballast is rated for Indoor Dry/Damp locations, including luminaires rated for UL wet locations .

OPERATION

The FireHorse emergency ballast is designed to immediately switch to the emergency mode when the primary AC power is interrupted, illuminating one or two lamps at a reduced lumen output for a minimum of 90 minutes. Upon restoration of primary AC power; the FireHorse emergency ballast immediately returns to a battery charging mode. The LED indicator light source when illuminated indicates battery is in charge mode when AC power is applied. It is recommended and by code required to test the emergency ballast every 30 days to ensure that the ballast is functioning as evidenced by reduced illumination of one or two lamps when pushing the test switch. It is also recommended a 90 minute discharge test is performed one time every 12 months. Battery requires 24 hours to fully re-charge.

INSTALLATION

The FireHorse emergency ballast may be used with either a switched or un-switched luminaire. If a switched luminaire is used, an un-switched hot lead must be connected to the emergency ballast to ensure the ballast remains in an uninterrupted charge condition while primary AC power source is active. Reference Installation Instructions for appropriate wiring or contact Fulham Customer Service.
The FireHorse emergency ballast must be fed from the same branch circuit as the AC ballast. Installation is not recommended with luminaires where the ambient temperature may fall below 0° C for extended periods as this may affect the operation of the emergency ballast.

REMOTE MOUNTING

The FireHorse emergency ballast may be remote-installed up to half the distance the AC ballast manufacturer recommends for remote mounting the AC ballast from the lamp, or up to 50 feet, whichever is less distance. The remote test switch plate may be mounted within 50 feet of the luminaire and is subject to NEC and applicable local electrical code.

UL and CODE COMPLIANCE

The FireHorse emergency ballast has been tested by Underwriters Laboratories in accordance with the standards contained in UL924, "Emergency Lighting and Power Equipment", and is UL approved for factory or field installations. Emergency illumination time meets or exceeds the National Electrical Code (NEC), Life Safety Code (NFPA-LSC) and UL 90 minute requirements. This product does not meet CEC Title 20 Code of Regulations.

BATTERY

The FireHorse emergency ballast contains a uniquely constructed, high-temperature rechargeable nickel cadmium battery. The battery is sealed within the ballast housing and is not replaceable. The battery must be recycled or disposed of properly and in compliance with federal, state and local regulations.

EMERGENCY ILLUMINATION

Illumination output varies with number of lamps, either 1 or 2 lamps, and lamp wattage requirement. The FireHorse model FH5-DUAL-1400L is designed to produce 750-1400 initial emergency lumen output; if model works with 2 lamps the total initial lumens is distributed between the 2 illuminated lamps. Refer to Table 1 for average lumen output for selected lamps.

SPECIFICATION

Emergency lighting shall be provided by using a FireHorse emergency ballast with a standard fluorescent luminaire equipped with or without an AC ballast. The emergency ballast shall be capable of operating one or two fluorescent lamps as referenced in Table 1. The emergency ballast shall conform to specifications contained in Electrical Data Table and comply with standards set forth by the current NEC. The emergency ballast shall be UL approved for installation on top, inside, or remote from the luminaire.

NOTE: USE OF LOW MERCURY "GREEN" LAMPS

A growing number of fluorescent lamp manufacturers have reduced the level of mercury content in their products. While this is helpful to the environment, the lower mercury content makes the lamp more difficult to start in emergency mode, particularly in a compact fluorescent cold-start emergency-only application without an AC ballast. Please contact Fulham Customer Service for further assistance if needed.

WARRANTY

Fulham Co., Inc. extends limited warranty only to the original purchaser or to the first user for the period of 2 years from the date of manufacture as indicated by the date code stamped on each product and when properly installed and under normal conditions of use. For additional warranty guide line, please refer to our Complete Product Catalog (www.fulham.com) OR call Customer Service at 1-323-779-2980. Due to a program of continuous improvement, Fulham Co., Inc. reserves the right to make any variation in design or construction to the equipment described.



Hardware kit and instruction sheets are included with EM Ballast.

**TABLE 1
LUMEN OUTPUT CHART**

FH5-DUAL-1400L WITHOUT INTEGRAL STARTER	WATTS	INITIAL LUMEN OUTPUT	BROWN CONNECTOR	INITIAL LUMEN OUTPUT	BROWN CONNECTOR
		1 LAMP	1 LAMP	2-LAMPS	2-LAMPS
F21T5	21W	750-1400	CLOSED	X	X
F28T5	28W	750-1400	CLOSED	X	X
F54T5HO	54W	1000-1200	OPEN	X	X
F17T8	17W	X	X	1100-1400	OPEN
F25T8	25W	1100-1400	CLOSED	1100-1400	OPEN
F32T8	32W	1100-1400	CLOSED	1100-1400	OPEN
F40T8	40W	1100-1400	OPEN	X	X
F96T8SL	59W	1100-1400	OPEN	X	X
F48T10VHO	110W	1100-1400	OPEN	X	X
F20T12	20W	X	X	1100-1400	CLOSED
F30T12	30W	X	X	1100-1400	OPEN
F40T12	40W	1100-1400	CLOSED	1100-1400	OPEN
F48T12HO	60W	1100-1400	OPEN	X	X
F60T12HO	75W	1100-1400	OPEN	X	X
F60T12SL	50W	1100-1400	OPEN	X	X
F72T12HO	85W	1100-1400	OPEN	X	X
F72T12SL	55W	1100-1400	OPEN	X	X
F84T12HO	100W	1100-1400	OPEN	X	X
F96T12HO	95W	1100-1400	OPEN	X	X
F96T12HO	110W	1100-1400	OPEN	X	X
F96T12SL	60W	1100-1400	OPEN	X	X
F96T12SL	75W	1100-1400	OPEN	X	X
FT 36	36W	1100	CLOSED	1100	OPEN
FT40	40W	1100	CLOSED	X	X
FT 55	55W	1100	CLOSED	X	X
CFTR13	13	X	X	750-1400	OPEN
CFTR18	18W	750-1400	OPEN	750-1400	OPEN
CFTR26	26W	750-1400	OPEN	750-1400	OPEN
CFTR32	32W	1100-1200	OPEN	X	X
CFTR42	42W	1200-1400	CLOSED	X	X
CFTR57	57W	1100-1200	OPEN	X	X
CFQ18	18W	750-1400	OPEN	750-1400	OPEN
CFQ26	26W	X	X	750-1400	OPEN
2D28W	28W	1000-1100	CLOSED	1000-1100	OPEN
2D38W	38W	1000-1100	CLOSED	1000-1100	OPEN
CRT5	22W	750-1400	OPEN	X	X
CRT5	40W	750-1400	CLOSED	X	X
CRT5	55W	750-1400	CLOSED	X	X
CRT9	32W	750-1400	CLOSED	X	X
CRT9	40W	750-1400	CLOSED	X	X

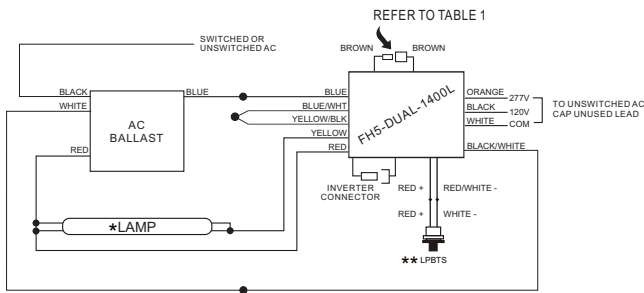
Full compatible lamp list - lumen ratings may vary with lamp specifications, light loss, lamp and luminaire maintenance and other utilization factors.
NOTE: WIRING DIAGRAMS SHOWN ON SEPARATE SHEET

"X" INDICATES LAMP COMBINATION NOT COMPATIBLE

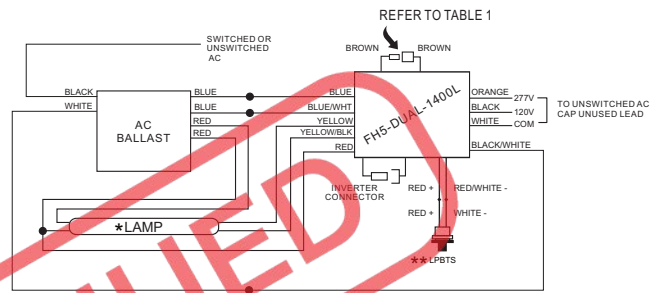
EMERGENCY BALLAST AND AC BALLAST MUST BE FED FROM THE SAME BRANCH CIRCUIT
TYPICAL SCHEMATICS ONLY. MAY BE USED WITH OTHER BALLASTS. CONSULT THE FACTORY FOR OTHER WIRING DIAGRAMS.

WIRING DIAGRAMS FOR ONE LAMP EMERGENCY OPERATION

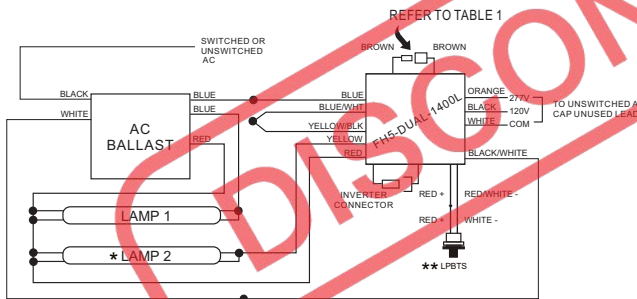
1. ONE (1) LAMP INSTANT START AC BALLAST



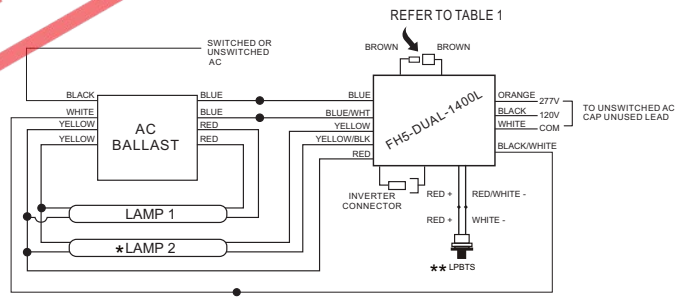
2. ONE (1) LAMP RAPID START AC BALLAST



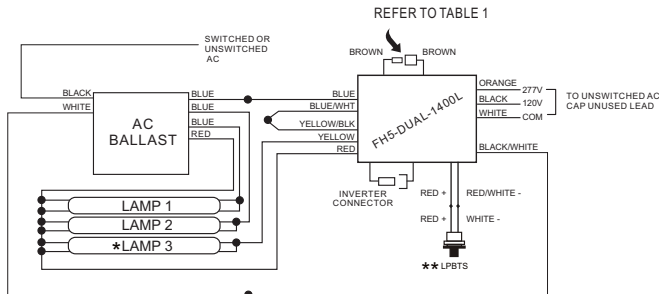
3. TWO (2) LAMPS INSTANT START AC BALLAST



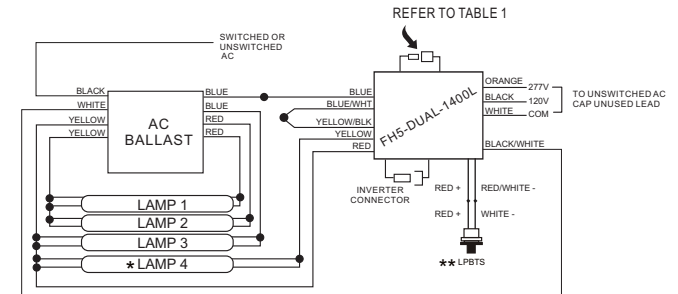
4. TWO (2) LAMPS RAPID START AC BALLAST



5. THREE (3) LAMPS INSTANT START AC BALLAST



6. FOUR (4) LAMPS INSTANT START AC BALLAST



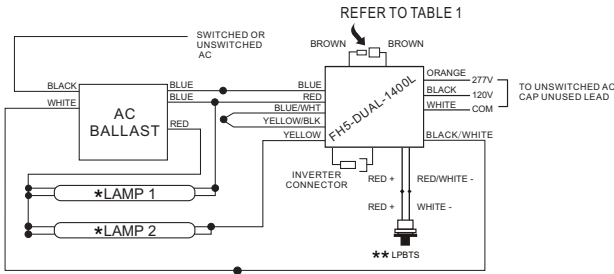
* AC / EMERGENCY

**LIGHTED PUSH BUTTON TEST SWITCH (LPBTS) USE PROPER CAPS TO TAP UNUSED LEADS

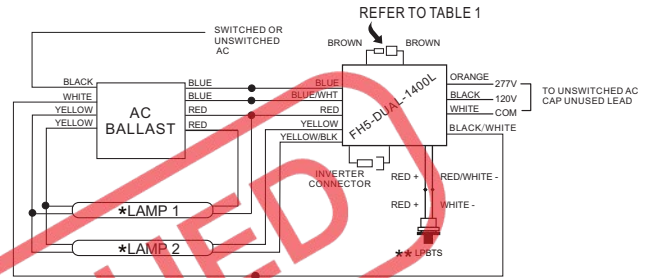
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WIRING DIAGRAMS FOR TWO LAMP EMERGENCY OPERATION

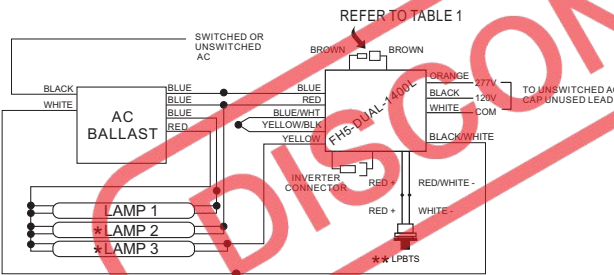
7. TWO (2) LAMPS INSTANT START AC BALLAST



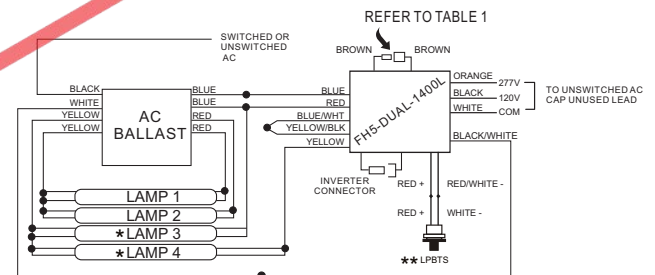
8. TWO (2) LAMPS RAPID START AC BALLAST



9. THREE (3) LAMPS INSTANT START AC BALLAST

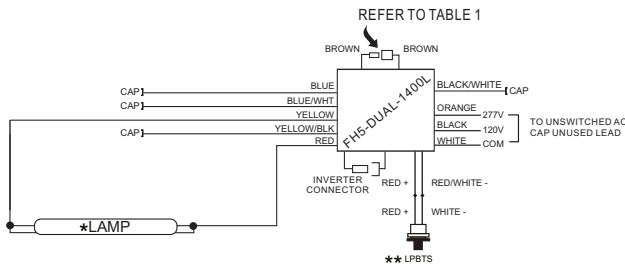


10. FOUR (4) LAMPS INSTANT START AC BALLAST

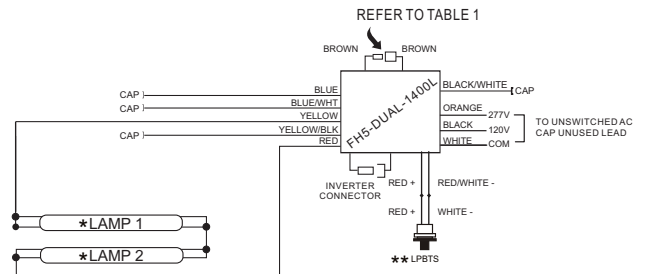


WIRING DIAGRAMS FOR EMERGENCY ONLY OPERATION

11. ONE (1) LAMP WITHOUT AC BALLAST



12. TWO (2) LAMPS WITHOUT AC BALLAST



* AC / EMERGENCY

**LIGHTED PUSH BUTTON TEST SWITCH (LPBTS) USE PROPER CAPS TO TAP UNUSED LEADS