The Fulham Distribution Mantra: "Do More With Less!"

Fulham established itself over 25 years ago with product programs specifically designed to be used in multitudes of ways. WorkHorse ballasts, Fulham's best known early examples (that are still relevant today), can be installed for use with many, many lamp types in a variety of configurations.

Jump ahead to present day, and Fulham has continued to carry its core philosophy forward for versatility, convenience, SKU-reduction/ordering ease, storage space reduction, cost savings and quick installation to the majority of its product offerings suited for the Distribution Channel.

Fulham's products, therefore, continue to be the "components of choice" to eliminate hassles in the field. As you flip through these pages of highlighted Distribution-centric products, you'll notice the common thread – Versatility to pare down the number of components needed to complete a job, or other attributes that allow for one item to be suited for more than one purpose. Enjoy!

WorkHorse LED - IP20 Programmable Drivers

- 250mA - 1500mA programmable output current
- 0-10V and DALI dimming
- Handheld programmer or SmartSet software
- Programmable dimming curve allows step dimming and dim-to-off
- Advanced programmability of output current and thermal temperature protection (NTC)

0 - 10V Dimming

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Dimming Type	Surge Protection L-N	Surge Protection L&N-G	IP	Dimensions (L x W x H)	Case Type
T1M1UNV105P-40E	40	250 - 1050	10 - 57	120-277; 50/60Hz	0 - 10V	2kV	4kV	20	10.83" x 1.22" x 0.98"	Linear w/End Terminals
T1M1UNV105P-60E	60	250 - 1050	10 - 57	120-277; 50/60Hz	0 - 10V	2kV	4kV	20	9.33" x 1.59" x 1.18"	Linear w/End Terminals
T1M1UNV105P-60F	60	250 - 1050	10 - 57	120-277; 50/60Hz	0 - 10V	2kV	4kV	20	4.98" x 2.99" x 1.22"	Compact w/ End & Back Terminals
T2C1UNV150P-40L	40	250 - 1500	10 - 57	120-277; 50/60Hz	0 - 10V or Bluetooth	2.5kV	2.5kV	20	6.61" x 1.97" x 1.18"	Compact w/End Leads

DALI Dimming

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Dimming Type	Surge Protection L-N	Surge Protection L&N-G	IP	Dimensions (L x W x H)	Case Type
T1A1UNV105P-40E*	40	250 - 1050	10 - 57	120-277; 50/60Hz	DALI	2kV	4kV	20	10.83" x 1.22" x 0.98"	Linear w/End Terminals

* Made to Order

DO MORE WITH LESS
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The Power of Programmability

All WorkHorse LED drivers feature Fulham's innovative SmartSet programming platform, which gives the user the power to create the right driver for any situation.

- Auto-Programming capability for high volume usage
- Driver does not need to be powered during programming
- Programming via handheld controller or PC software

TPSB-100 SmartSet Controller

SmartSet Software

To see the Fulham SmartSet programming platform in action visit the links below:

Overview of basic programming features: **www.fulham.com/smartsetprogramming**
One touch Auto-Programming: **www.fulham.com/smartsetauto**
Programming custom dimming curves: **www.fulham.com/smartsetdimmingcurve**

WorkHorse LED - IP65 Programmable Drivers

- IP65 for harsh, demanding environments
- 0-10V, DALI, and wireless dimming options
- Wide programmable current range in 1mA increments
- Handheld programmer or SmartSet software
- Advanced programmability of output current and thermal temperature protection (NTC)

XP Series: Programmable output current, dimming curves, and NTC profile

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Dimming Type	Surge Protection		IP	Dimensions (L x W x H)	Case Type
						L-N	L&N-G			
T1M1UNV210P-60L	60	500-2100	10-57	120-277; 50/60Hz	0-10V	4kV	6kV	65	9.49" x 1.69" x 1.14"	Linear w/End Leads

Certifications 120-277V models: cULus Class P, CE, ENEC, CB Scheme, RoHS, FCC (for wireless models)

XE Series: Programmable output current

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Dimming Type	Surge Protection		IP	Dimensions (L x W x H)	Case Type
						L-N	L&N-G			
T1M1UNV240P-96L	96	700-2400	30-56	120-277V; 50/60Hz	0-10V	4kV	6kV	65	6.69" x 2.56" x 1.26"	Linear w/End Leads

Certifications cULus Class P, RoHS

VividHorse DC LED Engine Retrofit Kits - CCT Selectable

CCT Selection Dip Switch

- Dual channel LEDs, Dip Switch on PCB for six-level-CCT selectable: 2700K, 3000K, 3500K, 4000K, 4500K and 5000K

- CRI90 standard; advanced phospor technology LEDs for superior CRI90 efficacy

- Protects investment by preserving existing luminaires

- No bulbs to change means lower maintenance costs

- Simple installation can be done in the field in minutes

- ENERGY STAR® Luminaire 2.2 Listed and CSD for utility rebate eligibility. Visit www.fulham.com/utilityrebates to learn more.

- Kits include installation hardware, required UL Classified labels, and installation instructions

Specifications

Input Voltage	120~277VAC +/- 10% (50/60Hz)
Operating Temperature Range	-35°C to 60°C / -31°F to 140°F
Lumen Maintenance @105°C	L70= >60,000 hours / L90= 36,000 hours (@Tc max = 96°C)
Dimming Type / Range	0-10V / 100% ~ 10%
Color Consistency	Binning per ANSI C78.377-2015 @25°C; 3 SDCM
PCB Material / Connector Qty / Em. Connection	CEM1 / 2 / Yes
Input Surge Test	2.5kV Common and Differential mode (Per ES Ring Wave Test)
Warranty	5 years @ Max. Tc from the date of manufacture
Safety/compliance	cURus (File # E351548, E342838), cULus (File # E365124), RoHS Compliant, Energy Star Luminaire 2.2 Listed and CSD

Product Models

Model Number	Number of LEDs	Input Power (W)	Nom. Lum. @4000K/ 90CRI (lm)	Engine Efficacy @90CRI (lm/W)	Shape	Dimensions (inches)	ENERGY STAR Listed*	ENERGY STAR CSD*
VKMUNV008RD930A	48+48	10	1400	140	Round	7.83 Dia. x 0.92 H	ENERGY STAR	✓
VKMUNV008RT930A	48+48	10	1400	140	Rectangular	7.4 L x 4.7 W x 0.92 H	ENERGY STAR	✓
VKMUNV012RD930A	72+72	14.5	2160	148	Round	7.83 Dia. x 0.92 H	ENERGY STAR	✓
VKMUNV018RD930A	48+48	21	2650	126	Round	7.83 Dia. x 1.18 H	ENERGY STAR	✓
VKMUNV018RT930A	48+48	21	2650	126	Rectangular	7.4 L x 4.7 W x 1.18 H	ENERGY STAR	✓
VKMUNV025RD930A	72+72	29.5	3730	126	Round	7.83 Dia. x 1.18 H	ENERGY STAR	✓

* ENERGY STAR designations: Listed = Luminaire 2.2. CSD= Certified Subcomponent Database, 4500K is not certified by ENERGY STAR

Part Numbering Key

V   K   M   UNV   025   **RD**   9   **30**   A

RD = Round
RT = Rectangular

Color Temperature

27 = 2700K
30 = 3000K
35 = 3500K
40 = 4000K
45= 4500K
50 = 5000K

Default CCT setting is 3000K as standard stocks.
Pre-setting to other CCTs is made to order. Contact Fulham for details

CCT SELECTABILITY = CONVENIENCE, SAVINGS, SPEED, VERSATILITY

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HotSpot Plus LED Driver & Emergency System

The revolutionary HotSpot Plus LED Driver & Emergency System combines the functions of a dimmable, programmable LED driver, emergency LED driver, and replaceable backup battery in a single compact unit. Under normal conditions this all-in-one solution operates as a constant current driver; during a power outage the integrated battery automatically activates, providing reliable emergency illumination for safe building egress. Benefits include smaller size, simplified installation, and the ability to bring emergency LED capability to smaller luminaires.

- Programmable output current in 1mA increments
- UL 924 Self-Diagnostics
- Selectable emergency output:

    40W models: 5W for 180 minutes or 10W for 90 minutes

    70W model: 7W for 90 minutes, programmable for lower power and longer runtime
- Compact size and simple installation for maximum flexibility

HotSpot Plus LED Driver and Emergency System

Watts	Output Current (mA)	Output Voltage (VDC)	Model Number	Input Voltage (VAC)	Dimming Type	Ch.	Dimensions (L x W x H)	Case Type
40	250-1400	11-55	FHSAC1-UNV-40BLS	120-277; 50/60Hz	0-10V	1	6.37" x 3.13" x 1.54"	Compact w/ Bottom Leads
40	250-1400	11-55	FHSAC1-UNV-40C	120-277; 50/60Hz	0-10V	1	6.32" x 3.13" x 1.14"	Compact w/ End Leads
40	250-1400	11-55	FHSAC1-UNV-40L	120-277; 50/60Hz	0-10V	1	9.49" x 2.40" x 1.34"	Linear w/ End Leads
70	350-2400	11-55	FHSAC1-UNV-70S	120-277; 50/60Hz	0-10V	1	16.70" x 1.18" x 1.00"	Linear w/ Terminals

HotSpot Plus Accessories

FHS-TSTWL-BC	IP67, bicolor LED Indicator / test switch for use in exposed, outdoor-rated luminaires for 40W models
FHS-TSTWL-BC-S	IP67, bicolor LED Indicator / test switch for use in exposed, outdoor-rated luminaires for 70W model
FHS-EXT-48-TST	48" test switch extension cable

The Power of Programmability

All HotSpot LED drivers feature Fulham's innovative SmartSet programming platform, which gives the user the power to create the right driver for any situation.

- Auto-Programming capability for high volume usage
- Driver does not need to be powered during programming
- Programming via handheld controller or PC software

TPSB-100 SmartSet Controller

SmartSet Software

To see the Fulham SmartSet programming platform in action visit the links below:

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One touch Auto-Programming: **www.fulham.com/smartsetauto**
Programming custom dimming curves: **www.fulham.com/smartsetdimmingcurve**

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HotSpot Constant Power Programmable LED Emergency Driver

Provides programmable, constant power emergency output for existing LED modules. Advanced features include self-diagnostics and detailed data logging. Meets CEC Title 20 battery charger requirements. Complete system includes emergency driver and emergency battery.

Specifications

Model Number	FHSCP-UNV-10P-L-SD	Output Type	Class 2
Input Voltage	100-277VAC, 50/60Hz	RFI/EMI	FCC Part 15A Non-Consumer
Input Current	0.06A Max.	Ambient Operating Temperature Range	10°C to 55°C (50°F to 131°F)
Output Power	1-10W	Dimensions (L x W x H)	7.89" x 2.05" x 1.17"
Output Current	620mA Max.	Battery Type / Recharge Time	LiFePO4 9.6VDC / 12 Hours
Output Voltage Range	16-55VDC	Input Surge Protection	Line-Neutral 2kV, Line & Neutral-Ground 2kV
Number of Output Channels	1	Warranty	5 years
Self-Diagnostics	Factory-enabled by default, can be disabled by luminaire manufacturer		
Bicolor LED Indicator	Included LED indicator/test switch provides automatic system status updates		

HotSpot Constant Power Programmable Battery Packs

Model Number	Max. Load for 90 Min	Capacity	Battery Voltage	Battery Type	RoHS	Recharge Time	Dimensions (L x W x H)
FHSBATL3-1.5-SD	5W	1500mAh	9.6V	LiFePO4	Compliant	12 hours	3.48" x 2.87" x 0.96"
FHSBATL9-.6-SD	6W	1800mAh					7.52" x 1.87" x 0.79"
FHSBATL3-3-SD	10W	3000mAh					4.39" x 2.92" x 1.30"
FHSBATL6-1.5L-SD	10W	3000mAh					9.13" x 1.63" x 0.97"
FHSBATT8-C3L-SD	10W	3000mAh		NiCd	Exempt	24 hours	9.25" x 2.11" x 1.21"

HotSpot Constant Power LED Emergency Drivers

Adds field-installable emergency capability to LED luminaires. Provides backup power to the luminaire's LED modules for at least 90 minutes. The cULus Classified driver is designed for flexibility, with multiple mounting options, a conduit feed, and an illuminated test switch.

Specifications

Input Voltage	120-277V (UNV)	Recharge Time	24 Hours	Illumination Time	Minimum 90 minutes
Output Voltage	10-55VDC	Ambient Temperature	0°C - 50°C	RFI/EMI	FCC Part 15A Non-Consumer
Surge Protection	Per C62.41 (TVS)	Output Type	Class 2		

HotSpot Constant Power LED Emergency Drivers

Model Number (CEC Title 20)	Output Power (W)	Output Lumens*	Output Current (mA)	Dimensions (L x W x H)
FHSCP-UNV-5WL	5	800	90-500	11.5" x 2.6" x 1.5"
FHSCP-UNV-7.8WL	7.8	1250	140-780	15.4" x 2.6" x 1.5"
FHSCP-UNV-10.7WL	10.7	1700	195-1007	15.4" x 2.6" x 1.5"
FHSCP-UNV-13.7WL	13.7	2200	250-1370	19.2" x 3.03" x 1.63"
FHSCP-UNV-17WL	17	2700	300-1700	19.2" x 3.03" x 1.63"

* Based on 160 lumens/Watt light source

25W Micro-Inverter / Emergency Power Supply

MULTI-TECHNOLOGY USE = VERSATILITY, EASE, SPEED

Works with any fixture(s) ≤150W for 25W of Constant Emergency Power for 90 minutes

Fulham's innovative, new Micro-Inverter offers the ability to power any fixture in emergency mode at 25W for a period of 90 minutes.

Its uniqueness stems from its ability to run a fixture GREATER than 25W by using built-in 0-10V dimming wires. For example, the unit will scale down the power of a 150W fixture to 25W in Emergency Mode, allowing customers to use this inverter in high output applications where previously a costly inverter was the only solution.

The FHUPS1-UNV-25L-SD can support one fixture rated for 150W or multiple fixtures whose system wattage adds up to 150W in normal operation (although anything greater exceeds the input power rating of the unit.) This reduces the number of SKUs needed for emergency fixtures to save money.

- Uninterrupted Power Supply
- UL listed and CEC Title 20 compliant
- Dims luminaires of up to 150W down to 25W(45VA) in emergency with 0-10V dimming; 25W(45VA) max without 0-10V dimming
- Conduit for leads
- Under voltage protection, short circuit protection, overload protection

- Easy installation time: no need to open up a luminaire to connect this device to the driver.
- Can be used with luminaires where the driver is not accessible, e.g. UFO high bays
- Saves money: higher wattage fixtures previously required a higher wattage/higher cost inverter
- Self diagnostic standard
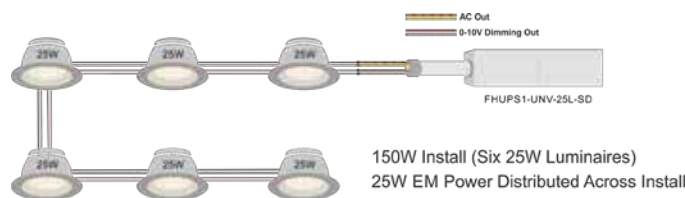- RJ11 port allows Bluetooth compatibility

Specifications

Model Number	FHUPS1-UNV-25L-SD	Output Type	Class 1
Input Voltage	120-277VAC, 50/60Hz	RFI/EMI	FCC Part 15A
Input Current	0.12A Max.	Ambient Operating Temperature Range	0°C to 50°C (32°F to 122°F)
Input Power	11W	AC Drive Input Power	150W Max (0-10V dimming required past 25W)
Output Power	25W (45Va) Max	Dimensions (L x W x H)	15.3" x 2.9" x 1.5"
Normal Output Voltage Range	120-277VAC.	Battery Type / Recharge Time	LiFoPo4 3600mAh / 12 Hours
Emergency Output Voltage Range	120/220/277VAC	Input Surge Protection	Line-Neutral 1kV, Line & Neutral-Ground 2kV
Number of Output Channels	1	Warranty	5 years
Self-Diagnostics	Factory-enabled by default, can be disabled in the field		
Bicolor LED Indicator	Included LED Indicator/test switch provides automatic system status updates		

Wiring one single luminaire without 0-10V dimming

FHUPS1-UNV-25L-SD

Wiring multiple luminaires with 0-10V dimming

AC Out
0-10V Dimming Out

FHUPS1-UNV-25L-SD

150W Install (Six 25W Luminaires)
25W EM Power Distributed Across Install

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HotSpot1 LED Emergency System

Seamlessly add inconspicuous emergency lighting capability to existing non-emergency fixtures, such as recessed lighting and wall sconces, with the HotSpot1 modular LED systems.

A wide choice of lumen output levels, run times, discrete size, universal input voltage, and plug-n-play low voltage output wiring provide extreme adaptability, low cost of installation, and a high level of safety during operation.

Linear   **H-configuration**

+1 323 599 5000   order@fulham.com

HotSpot1 LED Emergency System

HotSpot1 systems add LED emergency lighting capability to existing luminaires, including TLED luminaires and retrofit projects. UL Classified kits are approved for field installation and are ideal for both fluorescent and Type A and B LED tubes. A complete kit includes an emergency driver, module, battery, installation instructions, and all necessary hardware and labels. The system operates independently of the luminaire's light source, ensuring compatibility with many types of luminaires.

HotSpot1 Emergency Driver

Model Number	FHS1-UNV-3.6L
Input Voltage	100-277VAC (UNV)
Input Frequency	50/60Hz
Input Current	0.06 A Max.
Input Wattage	10W Max.
Standby Input Power	<0.8W
Compatible Batteries	NiCd, 3.6 VDC
Battery Capacities	3AH, 4AH, 8AH
Total LED Power	1-10W
Illumination Time	90 - 360 Min.
Surge Protection	C62.41 (TVS)
Over Current Protection	Fuse
Recharge Time	32 - 48 Hrs
LED Connection	Parallel
LED Output Protection	Self Resetting PTC
Output Classification	UL1310/Class 2

HotSpot1 Emergency Modules

Model Number	Watts	Shape	Applications
FHS6-AR-3WL	3	Linear	Wall sconce, ceiling flush mount, low level lighting
FHS1-AR4-WL	4	Linear	Wall sconce, ceiling flush mount, low level lighting
FHS3-AR-6W-SH	6	Small-H	Wall sconce, ceiling flush mount
FHS4-AR-8W-LH	8	Large-H	Wall sconce, ceiling flush mount
FHS3-AR-10W-SH	10	Small-H	Wall sconce, ceiling flush mount
FHS4-AR-10W-LH	10	Large-H	Wall sconce, ceiling flush mount

HotSpot1 Emergency Battery Packs

Model Number	Battery Qty/Type	Operation Duration	Output Power/Time	Dimensions (L x W x H)
FHSBATT3-C3	3/C	3 Amp/Hrs	4W: 145min, 6W: 90min	3.1" x 2.00" x 1.00"
FHSBATT3-D4	3/D	4 Amp/Hrs	4W: 200min, 6W: 125min, 8W: 90min	4.00" x 2.50" x 1.35"
FHSBATT3-F7	3/F	8 Amp/Hrs	4W: 360min, 6W: 235min, 8W: 175min, 10W: 135min	4.00" x 3.60" x 1.35"
FHSBATT3-F7L	3/F	8 Amp/Hrs	4W: 360min, 6W: 235min, 8W: 175min, 10W: 135min	11.75" x 1.56" x 1.37"

HotSpot1 LED Emergency Retrofit Kits

Model Number	Watts	Lumen Output	Comparable Fluorescent Lumen Output	Estimated Run Time (Mins)	Module Dimensions (L x W)	Case Qty.
Linear Module						
FHSKITT03LNC	3	450	720	145	4.68" x 0.82"	10
FHSKITT03LND	3	450	720	200	4.68" x 0.82"	10
FHSKITT03LNF	3	450	720	360	4.68" x 0.82"	20
FHSKITT03LNFL*	3	450	720	360	4.68" x 0.82"	20
FHSKITT04LNC	4	500	800	145	4.68" x 0.82"	10
FHSKITT04LND	4	500	800	200	4.68" x 0.82"	10
FHSKITT04LNF	4	500	800	360	4.68" x 0.82"	20
Linked Linear (2 Modules)						
FHSKITT07LND	7	900	1440	100	4.68" x 0.82"	10
FHSKITT07LNF	7	900	1440	180	4.68" x 0.82"	20
FHSKITT07LNFL*	7	900	1440	180	4.68" x 0.82"	20
Linked Linear (3 Modules)						
FHSKITT10LNF	10	1350	2160	120	4.68" x 0.82"	20
FHSKITT10LNFL*	10	1350	2160	120	4.68" x 0.82"	20
Small-H Module						
FHSKITT06SHC	6	750	1200	90	3.54" x 3.93"	10
FHSKITT06SHD	6	750	1200	125	3.54" x 3.93"	10
FHSKITT06SHF	6	750	1200	235	3.54" x 3.93"	20
FHSKITT10SHF	10	1250	2000	135	3.54" x 3.93"	20
Large-H Module						
FHSKITT08LHD	8	1000	1600	90	5.71" x 3.93"	10
FHSKITT08LHF	8	1000	1600	175	5.71" x 3.93"	20
FHSKITT10LHF	10	1250	2000	135	5.71" x 3.93"	20

* Linear battery

SIG Qualified Bluetooth® Mesh Lighting Control System

Bluetooth mesh is an emerging platform for connected lighting that is paving the way to IoT smart lighting. It provides fast, reliable performance, unmatched scalability, high-level security and out-of-the-box interoperability, creating opportunities for larger, more efficient lighting networks.

- **Wireless** High speed communication at distances of over 300 feet, creating massive savings on installation and wiring
- **Scalable** Start small with a single room, or connect thousands of devices in a building-wide installation
- **Secure** Advanced encryption standards with multiple authentication keys for maximum protection
- **Reliable** Self-healing network prevents communication losses and allows devices to be added or removed without disruption
- **Interoperable** All SIG Qualified Bluetooth mesh devices can communicate seamlessly, regardless of manufacturer

Fulham eliteBlue Commissioning Software

Fulham's eliteBlue commissioning software provides an intuitive set of tools for commissioning and monitoring qualified Bluetooth mesh lighting devices. Using simple web and iOS apps, users can easily customize lighting control parameters in accordance with site-specific needs and building energy codes.

- **Web portal**
  Used off site to manage lighting installation projects and plan commissioning, including mapping zones within a building, setting up control scenarios for zones and managing users collaborating on the project.
  Try it at eliteblue.fulham.com

- **Mobile app for iOS**
  Used onsite to commission devices and fine-tune installations. No specialized training or lighting control expertise is needed- the intuitive interface lets you add Bluetooth mesh lighting devices to a wireless network in no time.

Connected Driver

A 40W, 0-10V constant current driver with the unique ability to add Bluetooth mesh connectivity by attaching an intelligent Bluetooth antenna. Compatible with third-party sensors, wall switches, and other devices, the connected driver serves as the core component for powerful, easy-to-expand connected systems.

- 0-10V dimming standard. Add Bluetooth dimming with optional ESLI01HB01 SmartLink
- Compatible with Fulham's SmartSet programming platform

Specifications

Model Number	Input Voltage (VAC)	Watts	Output Voltage (VDC)	Dimensions (L x W x H)	Case Type	Case Qty.
T2C1UNV150P-40L	UNV (120-277)	40	10-57	6.61" x 1.97" x 1.18"	Compact w/End Leads	20

Bluetooth to 0-10V SmartBridge

A simple, easy-to-install component that connects to an existing 0-10V driver to add SIG Qualified Bluetooth mesh capability. The SmartBridge is an ideal solution for manufacturers looking to develop their Bluetooth product lines or contractors seeking to provide wireless lighting options in the field. *Do More With Less!*
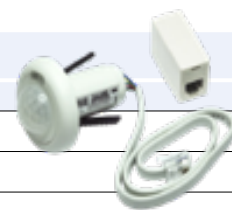
Specifications

Model Number	Max Load (W)	Max Input Current (A)	Input Voltage (VAC)	IP	Features	Dimensions (L x W x H)	Case Qty.
CTBRCB02JM02	600	5	UNV (120-277)	66	On / Off, 0-10V Dimming Control, Sensor Input	5.17" x 2.26" x 1.29"	30
CTBRCB03JM03-PC					On / Off, 0-10V Dimming Control, Sensor Input, Color Control, Power Metering		

Bluetooth Accessories

Model Number	Description
ESLTOPJX00SR	Short-range PIR occupancy, daylight harvesting sensor and Bluetooth Radio for connected LED driver
ESLTOPJX00LR	Long-range PIR occupancy, daylight harvesting sensor and Bluetooth Radio for connected LED driver
ESLI01HB01	Bluetooth SmartLink (attaches to T2C1UNV150P-40L to provide Bluetooth capability)
ELIOPJX00SR	Short-range PIR occupancy and daylight harvesting sensor for SmartBridge
ELIOPJX00LR	Long-range PIR occupancy and daylight harvesting sensor for SmartBridge
ESRPB-W-EO	Single Rocker EnOcean Switch
EDRPB-W-EO	Double Rocker EnOcean Switch
CTGATBPOE	IoT Bluetooth Gateway extends a mesh network with Internet access to visualize/analyse data

Programmable Sunhorse Ballasts

for Germicidal UV applications and Tanning

Specifications	SHS15P-UNV-H	SHS4P-UNV-C
Output Current Range (+/-10%)	800-1200mA 800mA defaul	340-840mA 800mA default
Input Voltage	120-277V UNV	100-277V UNV
Frequency Rating	50/60Hz	50/60Hz
Max Ballast Wattage	310W/260W	112/95W
Power Factor	>0.9	>0.9@≥60W load
Total Harmonic Distortion	See spec sheet	≤20%@≥60W load
Start Type	Programmed Rapid Start Type R.S	Programmed Rapid Start Type R.S
L x W x H (in)	10.00 x 2.80 x 1.79	6.77 x 3.02 x 1.27
L x W x H (mm)	254 x 71.1 x 45.4	172 x 76.7 x 32.2
Minimum Starting Temperature	-20ºC (-4ºF)	-20ºC (-4ºF)
CULUS and CE	Yes	Yes
PSE (for Japan)	-	Yes

Legacy Fulham Programmer TPSB-100 & New Display SHS-DISP

The new SunHorse Digital LCD Display SHS-DISP is a more robust device that expands user options. Attributes include:

- Remote ON/OFF Port Connection turns Output ON/OFF w/o removing input power to ballast
- NO/NC Relay
- Lamp Status 5VDC Digital Output
- Future I2C Sensor Implementation
- Multi-Ballast Monitoring/Control
- Audible buzzer alarm notifications
- Lamp failure and lamp hour end of life notifications
- 5VDC Digital Input for use with Smart and non-smart ballasts
- Can operate as a standalone lamp hour counter for non-smart ballastsballasts
- Powered by SHS Ballast RJ12 connection (directly from the ballast), 24VDC Barrel Plug, 12VAC/24VAC, or USB-C
- Displays stored data about lamp manufacturer and part number from SunHorse ballast memory

SHS-DISP

TPSB-100

SHS15P-UNV-H & SHS-DISP combination spec sheet

TPSB-100 spec sheet

SHS4P-UNV-C & SHS-DISP combination spec sheet

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Fluorescent Ballasts

Universal Voltage (120-277V)

Model Number	Dimensions (L x W x H)	Input Current	Master Carton Qty.
WH41-UNV-L*	9.48" x 1.41" x 1.02"	0.496A	25
WH43-UNV-L	9.48" x 1.41" x 1.02"	0.88A	25
WH44-UNV-L	9.48" x 1.41" x 1.02"	0.496A	25

*Made to order.

Dedicated Voltage (120, 230, and 277V)

Series	Model Number	Input Voltage (V)	Max Power (W)	Max Current (Amp)	Dimensions (L x W x H)	Configuration	Case Qty.
WORKHORSE 1	WH1-120-L	120	28	.10	5.92" x 0.94" x .76"	Linear case, side leads	90
WORKHORSE 2	WH2-120-L	120	35	.33	5.52" x 1.25" x 1.02"	Linear case, side leads	50
	WH2-120-C	120		.33	3.36" x 1.84" x 1.01"	Compact case, side leads	50
	WH2-277-L	277		.15	5.52" x 1.25" x 0.99"	Linear case, side leads	50
	WH2-277-C	277		.15	3.37" x 2.32" x 1"	Compact case, side leads	50
WORKHORSE 22	WH22-120-L	120	35	.25	5.52" x 1.25" x 1.02"	Linear case, side leads	50
	WH22-120-C	120		.25	3.36" x 1.84" x 1.01"	Compact case, side leads	50
WORKHORSE 3	WH3-120-L	120	64	.56	6.48" x 1.50" x 1.02"	Linear case, side leads	50
	WH3-120-C	120		.56	3.8" x 2.5" x 1.01"	Compact case, side leads	60
	WH3-230-L*	230		.29	6.45" x 1.5" x 1"	Linear case, side leads	50
	WH3-277-L	277		.24	6.48" x 1.5" x 1.02"	Linear case, side leads	50
	WH3-277-C	277		.24	3.83" x 3.11" x 1.01"	Compact case, side leads	60
WORKHORSE 33	WH33-120-L	120	64	.53	6.48" x 1.5" x 1.02"	Linear case, side leads	50
	WH33-120-C	120		.53	3.64" x 3.12" x 1.01"	Compact case, side leads	60
WORKHORSE 4	WH4-120-L	120	70	.56	6.48" x 1.5" x 1.02"	Linear case, side leads	50
WORKHORSE 5	WH5-120-L	120	128	1.15	8.5" x 1.73" x 1.01"	Linear case, side leads	50
	WH5-230-L	230		0.57	9.5" x 1.73" x 1.01"	Linear case, side leads	50
	WH5-277-L	277		0.48	9.5" x 1.73" x 1.01"	Linear case, side leads	50
WORKHORSE 6	WH6-120-L	120	140	1.04	8.5" x 1.73" x 1.01"	Linear case, side leads	50
	WH6-277-L	277		0.50	9.5" x 1.73" x 1.01"	Linear case, side leads	50
WORKHORSE 7	WH7-120-L	120	220	1.82	19.24" x 1.72" x 1.03"	Linear case, side leads	25
	WH7-120-H	120		1.82	11.73" x 3.23" x 1.23"	H can w/ magnetic footprint	16
	WH7-230-L	230		1.10	19.24" x 1.72" x 1.03"	Linear case, side leads	25
WORKHORSE 8	WH8-120-L	120	220	1.8	19.24" x 1.72" x 1.03"	Linear case, side leads	25
	WH8-230-L*	230		0.79			

*Made to order.

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Fluorescent Specifier Grade Ballasts

WORKHORSE FULHAM

Specifier Grade T8/T12 Specifications

Power Factor	98.5% Min.
ATHD	Less than 10%
EMI	FCC CFR Title 47 Part 18 non-consumer
Ballast Factor	>.87
Starting Method	T8: Instant Start T12HO: Modified Rapid Start
Regulatory Approvals	UL & cULus Listed Type 1 or Type 2
Inherent Thermal Protection	Class P
Transient Protection	C62.41 Class A 7 strikes
Dimensions (L x W x H)	T8: 9.5" x 1.3" x 1.0" T12HO: 9.5" x 2.3" x 1.6"
Lamp CF	< 1.7
Min. Starting Temp.	0°F (-18°C)
Weight	T8: 1.5 lbs. (700g) T12HO: 2.4lb. (1.09 kg)

Specifier Grade T8/T12 Ballasts

Model Number	Input Voltage (VAC)	Input Power (W)	Max. Current (A)	Black/White Wires	Red Wires	Blue Wires	Yellow Wires	Case Qty (pcs.)	CEE
WHSG2-UNV-T8-IS	120-277; 50/60Hz	59	.50	25"	46"	31"	N/A	25	CEE
WHSG3-UNV-T8-IS	120-277; 50/60Hz	85	.71	25"	46"	31"	N/A	25	CEE
WHSG4-UNV-T8-IS	120-277; 50/60Hz	112	.93	25"	31"	31"	46"	25	CEE

LONGHORSE FULHAM

Remote Mount Electronic Ballasts

Specifications

Power Factor	>0.9
THD	<34.6%
EMI/RFI Compliance	FCC Part 18-A
Sound Rating	"A"
Ballast Type	Instant Start
Voltage Transients	ANSI C82.11 - 1993
Input / Protection	FUSE
Remote Mounting	20ft Max
Min. Operating Temp	-30°C (-20°F)
Max. Case Temp	70°C (158°F)
Approvals / Class	cULus Listed, Class "P", 1 or 2 Outdoor

- • Operates up to 20ft. from lamp
- • Versatile
- • High Power Factor
- • Energy Saving
- • Lightweight
- • Solid-State Electronics

Fluorescent Low Temperature Electronic Ballasts

Model Number	Lamp Watts / Type	Lamps Operated	Input Watts	Line Current	Ballast Factor	Efficacy Factor
LH4-120L	F28T5	2	55	0.48	1.0	1.7

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Compact Fluorescent (CFL) Electronic Ballasts

Specifications

Operating Voltage	120V-277V; 50/60Hz
ATHD	< 10%
Over Current	Fuse
Transient Protection	C62.41 Class A 7 strikes
Regulatory Approvals	UL & cULus Listed Type 1 Outdoor
EMI	FCC CFR Title 47 Part 18 non-consumer
High Power Factor	> .98
Ballast Maximum Case Temp.	167ºF (75ºC) - 5 Year Warranty
Ballast Maximum Case Temp.	194ºF (90ºC) - 3 Year Warranty
Lamp Starting Mode	Program Start
Inherent Thermal Protection	Class P

CFL Ballasts & Kits

Model Number	Max Load	Max. Current	Dimensions (L x W x H)	Weight	Case Quantity
RHA-UNV-226-C	57W	.52 A	5.1" x 2.4" x 1" (4.3" L case)	5.2 oz.	C Models: 50 pcs/ case Kits (K): 60 pcs/ case
RHA-UNV-242-C	84W	.752 A	5.1" x 3" x 1.3" (4.3" L case)	7 oz.	C Models: 50 pcs/ case

T5HO & T5HE Fluorescent Electronic Ballasts

T5HO & T5HE Fluorescent Ballasts

Model Number	Max. Load (W)	Max. Current (A)	Dimensions (L x W x H)	Connector Type	Case Qty (pcs.)
RHA-UNV-254-LT5	120W	1.0 A	9.53" x 1.32" x 1.05"	Leads	25
RHA-UNV-454-LT5†	240W	2.0 A	16.88" x 1.69" x 1.18"	Leads	20

† Made to order. Minimum order quantity applies.

Pony Electronic Ballasts

Pony Electronic Ballasts

Model	Model Number	Operates Lamps	Dimensions (Inches)
Pony for CFL	NPY-120-118-CFL*	1 x 13CFT/E, 18CFQ/E, 18CFTR/E	H 1.03", W 1.76", L 3.36"
	NPY-120-126-CFL	1 x 18CFT/E, 24/27CFT/E, 26CFQ/E, 26CFQ/E, 26CFTR/E, 32CFTR/E, 22CRT9	H 1.02", W 2.39", L 3.36"
	NPY-120-218-CFL	2 x 13CFT/E, 18CFQ/E, 18CFTR/E	H 1.02", W 2.39", L 3.36"

*Made to order.

SugarCube Ballasts

Pony Electronic Ballasts

Model	Model Number	Operates Lamps	Dimensions (Inches)
For T5 / T8 / T12	SC-120-108-LT5	1 x F6T5, F8T5	H 4.76", W 1.05", L .76"
	SC-120-213-LT5	1 x F21T5, F8T5 + F13T5; 2 x F13T5, F14T12	H 5.53", W 1.27", L 1.01"
	SC-120-115-CT8	1 x F14T8, F15T8, F17T8, F14T12, F15T12	H 3.09", W 1.45", L 1"
	SC-120-132-T8XL*	1 x F15T8, F17T8, F25T8, F32T8	H 6.3", W 1.08", L 1.01"
For CFL & Circle	SC-120-113-CFL	1 x 13CFQ/E, F15T8, F17T8, 13W Spiral	H 3.09", W 1.45" L 1"
For UV Lamps	SC-120-287-CUV	1 x 180mm T5 UV, 287mm T5 UV	H 3.07", W 1.46", L 1"
	SC-230-287-CUV	1 x 180mm T5 UV, 287mm T5 UV	H 3.07", W 1.46", L 1"
For 230V	SC-230-113-CFL*	1 x Quad (CFQ/E), 4 Pin 13W; 1 x Triple (CFTR/E), 4 Pin 13W	H 3.09", W 1.45", L 1"

*Made to order.

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