LED | Controls | Emergency

Europe

Featured Products Catalogue

FULHAM®

A Pioneer in Lighting Electronics

Founded in 1994, Fulham is dedicated to clever, sustainable lighting solutions that give our users the power to create or install smart, differentiated lighting. Fulham's revered product quality and world-class customer responsiveness make us the preferred partner to over 3000 lighting manufacturers and distributors worldwide.

28 Years of Innovation

1994
Fulham Co., Inc. incorporated

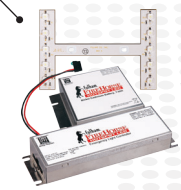
2001
Global Headquarters opens Hawthorne, California

WorkHorse Fluorescent Ballasts launched

2008
First Fulham LED products released

Fulham engineering lab approved for UL product testing

2009
HotSpot1 wins



HotSpot LED Emergency Systems debut

LED DRIVERS

LIGHT SOURCES

From our headquarters in Los Angeles and design centers in China and India, our team of product managers and engineers work with our customers to conceive, design, and manufacture reliable, sustainable lighting solutions that bring cutting edge innovation to a global market.

2013
HotSpot2 LED emergency system wins ECM Product of the Year Award

2011
Fulham India opens

2015
WorkHorse LED & HotSpot Plus programmable drivers launched

2017
LinearHO modules released

Bluetooth® and PoE
clever, controllable lighting components launched

2019
PoE drivers win LEDs Magazine Sapphire Award

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Visit **www.fulham.com** for additional products not shown here, including fluorescent ballasts for UV and general lighting, DC LED light engines, and products for international markets.

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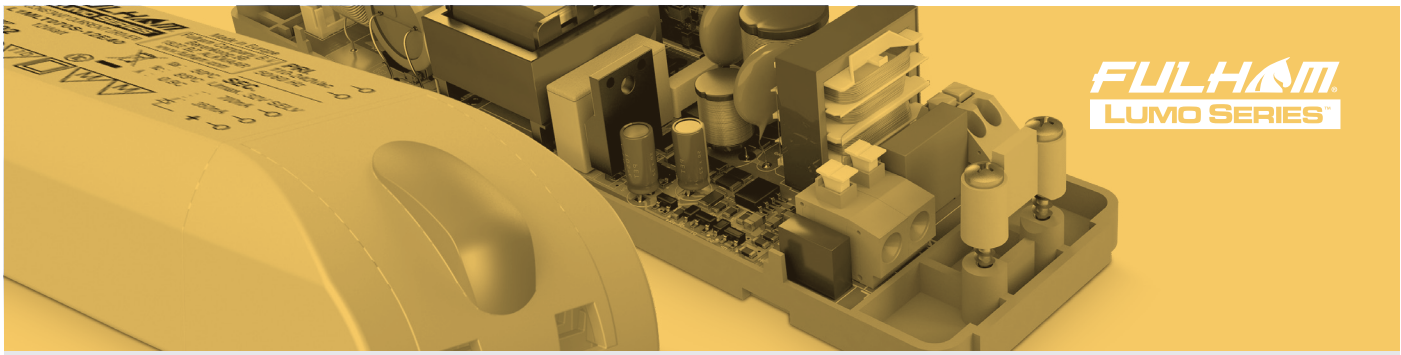

Reaching New Heights in Engineering Excellence

Fulham Lumo Series drivers are built on core engineering design principles for exceptional standards of performance and reliability in LED systems. Highest grade critical components together with design features for thermal management ensure excellent reliability. Low ripple designs create flicker-free lighting and perfectly smooth dimming. Simplicity of specification and installation is a key characteristic of all Fulham Lumo Series drivers, hence the wide voltage and current ranges and industry leading low inrush current.

Engineered for Performance
- Industry leading efficiency
- Multiple dimming options and output currents
- Very high power factor

Engineered for Reliability
- Low inrush current
- Thermal, overload, short circuit and overvoltage protection
- Flicker-free light

Engineered for Simplicity
- Future-proof flexibility – industry leading voltage and current range enabling seamless support of LED generations and minimizing supply chain complexity

FULHAM LUMO SERIES

Constant Voltage Output

L 100 x W 52 x H 24 (mm)

Model Number	Alternate Reference	Max Watts (W)	Max Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)	Dimming Type
L1W1MID120D-20E	L05011i2	20	1200	Dipswitch	6 - 42 options	220 - 240 (50/60 Hz)	1-10V/pulse

L 157 x W 42 x H 32 (mm)

Model Number	Alternate Reference	Max Watts (W)	Max Current (mA)	Output Voltage (Vdc)	Input Voltage (Vac)	Dimming Type
L1MLT024V-36E*	L05046	36	1500	24	110 - 240 (50/60 Hz)	Non-Dimming

* Contact Fulham for lead time and availability

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FULHAM LUMO SERIES

Dimming Multiple Output, Constant Current

L 99 x W 39 x H 23 (mm)

Model Number	Alternate Reference	Max Watts (W)	Output Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)	Dimming Type
L1E1230025S-10E	L05021-40250	10	200/250	Output wires	20 - 40	220 - 240 (50/60 Hz)	Mains Dimming
L1E1230070S-12E	L05021	12	350/700	Output wires	3 - 32	220 - 240 (50/60 Hz)	Mains Dimming
L1E1230030S-12E	L05021-40300	12	180/300	Output wires	20 - 40	220 - 240 (50/60 Hz)	Mains Dimming

L 110 x W 52 x H 24 (mm)

Model Number	Alternate Reference	Max Watts (W)	Output Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)	Dimming Type
L1W1MLT500S-20E	L05011Ci	20	110 - 500	Potentiometer	3 - 43	110 - 240 (50/60 Hz)	1-10V/Pulse/Pot
L1W2MLT100S-20E	L05016i	20	1x 250-1000 2x 250-500	Potentiometer	3 - 33	110 - 240 (50/60 Hz)	1-10V/Pulse/Pot
L1V1230105S-25E	L05023-A	25	100 - 1050	Dipswitch/ TPSB-100EU	3 - 43	220 - 240 (50/60 Hz)	Mains Dimming
L1M1MID120S-24E	L05011i3	20	100 - 1200	Dipswitch	6 - 42	180 - 240 (50/60 Hz)	1-10V/Pot
		24	600 - 900				
L1W1MID140S-30E	L05031	30	100 - 1400	Dipswitch	6 - 42	180 - 240 (50/60 Hz)	1-10V/Pulse/Pot

L 157 x W 42 x H 32 (mm)

Model Number	Alternate Reference	Max Watts (W)	Output Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)	Dimming Type
L1A1MID100S-30E	L05025	30	100 - 1000	Resistor	7 - 43	160 - 240 (50/60 Hz)	DALI
L1A1MID100S-40E	L05040	40	100 - 1000	Resistor	7 - 55	160 - 240 (50/60 Hz)	DALI
L1M1MLT105S-40E	L05049-601000	40	245 - 1050	Resistor	26 - 60	110 - 240 (50/60 Hz)	1-10V/Pot

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FULHAM LUMO SERIES™

Non-Dimming Multiple Output, Constant Current

L 99 x W 39 x H 23 (mm)

Model Number	Alternate Reference	Max Watts (W)	Output Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)
L1MLT020S-10E48	L05020-1248200	12	150/200	Output wires	20 - 48	115 - 240 (50/60 Hz)
L1MLT070S-12E40	L05020-1240700	12	350/700	Output wires	20 - 40	115 - 240 (50/60 Hz)

L 157 x W 42 x H 32 (mm)

Model Number	Alternate Reference	Max Watts (W)	Output Current (mA)	Output Current Selection Method	Output Voltage (Vdc)	Input Voltage (Vac)
L1MLT140S-40E	L05044	40	300 - 1400	Resistor	15 - 32	110 - 240 (50/60 Hz)

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WORKHORSE FULHAM

IP20 Programmable Drivers

- 250mA - 1500mA programmable output current
- 0-10V 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		IP	Dimensions (L x W x H)	Case Type
						L-N	L&N-G			
T1M1UNV105P-40E	40	250 - 1050	10 - 7	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 - 7	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 - 7	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 - 500	10 - 7	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

***cULus Listed**

SmartSet: The Power of Programmability

Fulham's programmable WorkHorse LED drivers run on the innovative SmartSet programming platform, an intuitive, flexible system that gives the user the power to create the right driver for any situation. Benefits include SKU reduction and the ability to integrate more efficient LED modules into existing luminaire designs.

- **Output current programmable in 1mA increments**
- **Allows custom dimming curves (for step dimming and dim-to-off)**
- **Driver does not need to be powered during programming**
- **One touch Auto-Programming capability for high volume usage**
- **Programming via handheld controller or PC software**

TPSB-100EU
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***

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Non-Dimmable Dedicated Constant Current LED Drivers

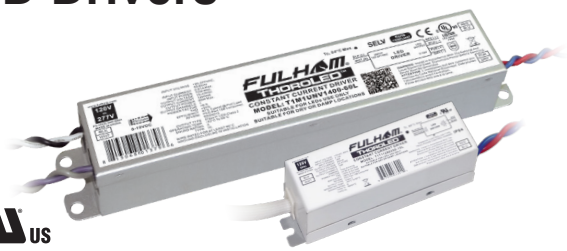
- Optimized for high efficiency performance
- Dedicated output, single channel
- Wide range of output currents and voltages
- Compact and linear case types to fit numerous applications

Non-Dimmable Dedicated Constant Current LED Drivers

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Surge Protection		IP	Dimensions (L x W x H)	Case Type
					L-N	L&N-G			
TC11200350-15C	17.5	350	24-50	120; 50/60Hz	2kV	4kV	Damp	2.57" x 1.77" x 0.98"	Compact w/End Leads
T1UNV1400-60L	60	1400	20 - 43	120-277; 50/60Hz	2kV	4kV	64	7.72" x 1.69" x 1.18"	Linear w/End Leads

Dimmable Dedicated Constant Current LED Drivers

- Smooth dimming: 100% to 10% models
- Dedicated output, single channel
- Wide range of output currents and voltages
- Compatible with leading dimmer brands
- Compact and linear case types to fit numerous applications



Dimmable Dedicated Constant Current LED Drivers: 0-10V

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Surge Protection		IP	Dimensions (L x W x H)	Case Type	cULus Class P
					L-N	L&N-G				
T1M1UNV0350-15L	15	350	18 - 45	120-277; 50/60Hz	1kV	2kV	64	3.94" x 1.18" x 0.91"	Linear w/End Leads	
T1M1UNV0700-30L	30	700	18 - 45	120-277; 50/60Hz	1kV	2kV	64	4.65" x 1.18" x 1.16"	Linear w/End Leads	
T1M1UNV0900-40L*	40	900	10 - 45	120-277; 50/60Hz	1kV	2kV	64	9.49" x 1.3" x 1.06"	Linear w/End Leads	
T1M1UNV1400-60L	60	1400	10 - 43	120-277; 50/60Hz	2kV	4kV	64	9.49" x 1.69" x 1.21"	Linear w/End Leads	

* Made to Order

Dimmable Dedicated Constant Current LED Drivers: TRIAC

T1T11200350-15L	15	350	20 - 42	120	1kV	2kV	64	3.94" x 1.18" x 0.91"	Linear w/End Leads
T1T11200700-30C*	30	700	21 - 42	120	1kV	2kV	64	3.35" x 2.56" x 0.75"	Compact w/End Leads
T1T11200700-30L	30	700	21 - 42	120	1kV	2kV	64	4.65" x 1.18" x 1.16"	Linear w/End Leads

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THOROLED FULHAM

Non-Dimmable Constant Voltage LED Drivers

- 12VDC or 24VDC Output
- Linear form factor
- Surge protection, overload protection
- Low temperature performance

Non-Dimmable Constant Voltage LED Drivers

Model Number	Output Watts (W)	Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Ch.	Surge Protection		IP	Dimensions (L x W x H)	Case Type
						L-N	L&N-G			
T1UNV024V-20L*	20	833	24	100-277; 50/60Hz	1	1kV	2kV	62	6.30″ x 1.57″ x 0.98″	Linear w/End Leads
T1UNV012V-60LF	60	5000	12	100-277; 50/60Hz	1	2kV	4kV	64	9.49″ x 1.69″ x 1.22″	Linear w/End Leads
T1UNV024V-60L	60	2500	24	100-277; 50/60Hz	1	2kV	4kV	66	9.49″ x 1.70″ x 1.21″	Linear w/End Leads
T1UNV012V-60LG*	60	5000	12	100-277; 50/60Hz	1	2kV	4kV	68	9.53″ x 1.67″ x 1.34″	Linear w/End Leads
T1UNV024V-60LF	60	2500	24	100-277; 50/60Hz	1	2kV	4kV	64	9.49″ x 1.69″ x 1.22″	Linear w/End Leads
T1UNV012V-75L*	75	6250	12	100-277; 50/60Hz	1	2kV	4kV	64	9.49″ x 1.69″ x 1.22″	Linear w/End Leads
T1UNV024V-75L*	75	3125	24	100-277; 50/60Hz	1	2kV	4kV	64	9.49″ x 1.69″ x 1.22″	Linear w/End Leads
THCV1UNV024V-100L**	100	4100	24	120-277; 50/60Hz	1	2kV	4kV	64	10.47″ x 1.69″ x 0.96″	Linear w/End Leads

* Made to Order

**This driver is cULus Listed.

THOROLED FULHAM

0-10V Dimming Constant Voltage LED Drivers

- Linear form factor
- Surge protection, overload protection

Constant Voltage Dimmable LED Drivers

Model Number	Watts (W)	Max Output Current (mA)	Output Voltage (VDC)	Input Voltage (VAC)	Ch.	IP	Dimensions (mm) (L x W x H)	Case Type
T1M1UNV012V-20L*	20	1660	12	120 - 277; 50/60Hz	1	62	160 x 40 x 25	Linear w/End Leads
T1M1UNV024V-20L*	20	833	24	100 - 277; 50/60Hz	1	62	160 x 40 x 25	Linear w/End Leads
T1M1UNV012V-60L*	60	5000	12	100 - 277; 50/60Hz	1	66	241 x 43 x 31	Linear w/End Leads
T1M1UNV024V-60L*	60	2500	24	120 - 277; 50/60Hz	1	64	241 x 43 x 31	Linear w/End Leads
T1M1UNV012V-75L*	75	6250	12	120 - 277; 50/60Hz	1	64	241 x 43 x 31	Linear w/End Leads
T1M1UNV024V-75L*	75	3125	24	120 - 277; 50/60Hz	1	64	241 x 43 x 31	Linear w/End Leads

* Contact Fulham for lead time and availability

Some products may not carry CE marking. Contact Fulham for more information.

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Low Profile Linear High Output DC LED Modules

- Ideal replacement for T5HO in linear highbays, water/vapor proof, and recessed and wall luminaires
- Aluminium extrusion mount provides superior thermal management
- Low profile design for use in smaller luminaires
- Constant current, high-efficacy LEDs, 3 SDCM for high color consistency
- Up to 219 lm/W; output range 234 lm to 14,699 lm (@4000K/80CRI)
- Optional lenses snap on in seconds (See page 25)

Specifications

Operating Temp. Range	-40°C to 55°C / -40°F to 131°F	**PCB Material**	MCPCB (Aluminium Clad)
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM	**Warranty**	5 years @ 105ºC Tc from the date of manufacture
Lumen Maintenance	L70: >60,000Hrs / L90: 40,000Hrs (meets DLC Premium and Standard requirements)	**Safety/compliance**	cURus (File # E351548), UL Class 2 Lighting System, CE, SELV, RoHS Compliant

Product Models

Model Number / Dimension (L x W x H)	Number of LEDs	Input Current (mA)	Nom.Fwd. Voltage (VDC)	Nom. Rated Power (W)	Max. Fwd. Voltage (V)	Max. Rated Power (W)	Nom. Lum. @4000K/80CRI (lm)	Nom. Efficacy @4000K/80CRI (lm/W)
VMU048012LPyxxA 5.51″ x 1.26″ x 0.29″ (140mm x 32mm x 7.4mm)	24	175	22.3	3.9	25	4	799	205
		350	23.1	8.1	25	9	1518	187
		480*	23.8	11.40	26	12	1959	172
VMU064025LPyxxA 10.94″ x 1.26″ x 0.29″ (278mm x 32mm x 7.4mm)	48	350	34.0	11.9	37	13	2347	197
		450	34.7	15.6	38	17	2942	189
		640*	35.6	22.8	39	25	3919	172
VMU080030LPyxxA 22.01″ x 1.26″ x 0.29″ (559mm x 32mm x 7.4mm)	60	350	33.7	11.8	37	13	2380	202
		700	35.1	24.6	39	27	4418	180
		800*	35.6	28.5	39	31	4899	172
VMU125050LPyxxA 22.01″ x 1.26″ x 0.29″ (559mm x 32mm x 7.4mm)	96	350	32.9	11.5	35	12	2425	211
		700	34.1	23.9	36	26	4698	197
		1250*	35.5	44.4	38	49	7700	173
VMU140055LPyxxB† 33.07″ x 1.26″ x 0.29″ (840mm x 32mm x 7.4mm)	108	700	33.8	23.7	36	25	4736	200
		1050	34.7	36.4	38	39	6847	188
		1400*	35.5	49.7	39	55	8656	174
VMU140055LPyxxA 44.13″ x 1.26″ x 0.29″ (1121mm x 32mm x 7.4mm)	108	700	33.8	23.7	36	25	4736	200
		1050	34.7	36.4	38	39	6847	188
		1400*	35.5	49.7	39	55	8656	174
VMU140055LPyxxC† 45.98″ x 1.26″ x 0.29″ (1168mm x 32mm x 7.4mm)	108	700	33.8	23.7	36	25	4736	200
		1050	34.7	36.4	38	39	6847	188
		1400*	35.5	49.7	39	55	8656	174
VMU240095LPyxxA 44.13″ x 1.26″ x 0.29″ (1121mm x 32mm x 7.4mm)	180	700	33.0	23.1	35	24	4838	209
		1400	34.2	47.9	37	52	9331	195
		2400*	35.6	85.4	39	94	14,699	172
VMU240095LPyxxC† 57.95″ x 1.26″ x 0.29″ (1472mm x 32mm x 7.4mm)	180	700	33.0	23.1	35	24	4838	209
		1400	34.2	47.9	37	52	9331	195
		2400*	35.6	85.4	39	94	14,699	172

* Indicates maximum rated current. Modules may be operated at a current less than or equal to this value, below the Tc rating.
† Made to order. Minimum order quantity applies.

Part Numbering Key

V M U 240 095 LP **8** **30** A

CRI

Standard: 8 = 80
Made-to-order: 9 = 90

Color Temperature

Standard: 30 = 3000K, 35 = 3500K, 40 = 4000K, 50 = 5000K

Made-to-order: 27 = 2700K, 57 = 5700K, 65 = 6500K

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Linear High Output DC LED Modules

- Ideal replacement for T5HO in linear highbays, water/vapor proof, and recessed and wall luminaires
- Aluminum extrusion mount for thermal management with positioning magnets
- LED at each end and connector underneath for even light distribution
- Constant current, high-efficacy LEDs, 3 SDCM for high color consistency
- Up to 198 lm/W; output range 2,200 lm to 13,310 lm (@4000K/80CRI)

Specifications

Operating Temp. Range	-40°C to 55°C / -40°F to 131°F	**PCB Material**	CEM3
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM	**Warranty**	5 years @ 105°C Tc from the date of manufacture
Lumen Maintenance	L70: >60,000Hrs / L90: 40,000Hrs (meets DLC Premium and Standard requirements)	**Safety/compliance**	cURus (File # E351548), UL Class 2 Lighting System, CE, SELV, RoHS Compliant

Product Models

Model Number / Dimension (L x W x H)	Number of LEDs	Input Current (mA)	Nom.Fwd. Voltage (VDC)	Nom. Rated Power (W)	Max. Fwd. Voltage (V)	Max. Rated Power (W)	Nom. Lum. @4000K/80CRI (lm)	Nom. Efficacy @4000K/80CRI (lm/W)
TMU125050CLyxxA 22" x 1.73" x 0.39" (560mm x 44mm x 10mm)	96	350	33	12	35	12	2245	195
		1050	35	37	38	40	6210	169
		1250*	36	44	39	49	7130	161
TMU140055CLyxxA 44.1" x 1.73" x 0.39" (1120mm x 44mm x 10mm)	108	350	33	11	34	12	2255	196
		1050	35	36	38	39	6340	174
TMU140055CLyxxB† 33.7" x 1.73" x 0.39" (840mm x 44mm x 10mm)		1400*	36	50	39	55	8015	161
TMU240095CLyxxA 44.1" x 1.73" x 0.39" (1120mm x 44mm x 10mm)	180	350	32	11	34	12	2230	198
		1400	34	48	37	52	8640	180
TMU240095CLyxxC† 58" x 1.73" x 0.52" (1473.2mm x 44mm x 13.3mm)		2400*	36	85	39	94	13610	159

* Indicates maximum rated current. Modules may be operated at a current less than or equal to this value, below the Tc rating.
† Made to order. Minimum order quantity applies.

Part Numbering Key

T M U 240 095 CL **8** **30** A

CRI

Standard: 8 = 80
Made-to-order: 9 = 90

Color Temperature

Standard: 30 = 3000K, 35 = 3500K, 40 = 4000K, 50 = 5000K

Made-to-order: 27 = 2700K, 57 = 5700K, 65 = 6500K

Accessories for Low Profile Linear HO & Linear HO Output DC Modules

Model Number	Description	Model Number	Description
TLE-OPT-120-002	5.5" snap-on lens, 82% transmissivity	**TLE-OPT-120-021***	58" snap-on lens, 82% transmissivity
TLE-OPT-120-003	11" snap-on lens, 82% transmissivity	**TLE-OPT-120-020**	Standard LinearHO module end caps (2 pieces)
TLE-OPT-120-004	22" snap-on lens, 82% transmissivity	**VLE-OPT-120-012***	Low Profile LinearHO module end caps (2 pieces)
VLE-OPT-120-033D*	33" snap-on lens, 82% transmissivity	**TLC-HN02**	22" wire harness for 1 or 2 modules in parallel
TLE-OPT-120-013	44" snap-on lens, 82% transmissivity	**TLC-HN04**	22" wire harness for 3 or 4 modules in parallel
TLE-OPT-120-014*	46" snap-on lens, 82% transmissivity		

*Made to order.

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450mA ECO Series DC LED Modules

- Range of common lengths and wattages to fit a variety of luminaires
- High efficacy: up to 150 lm/W @ 350mA, 4000K/90 CRI
- On board connectors allow easy wire connections and end-to-end board linking
- 3 SDCM for high color consistency
- CRI90 Standard, meets CEC Title 24 requirement

Specifications

Beam Angle	120°
Operating Temperature Range	-35°C to +45°C (-31°F to 113°F)
Lumen Maintenance	L70 = 60,000hrs @ Tc=105°C / L90 = 40,000hrs @ Tc=105°C
Color Consistency	Binning per ANSI C78.377-2008; 4 SDCM
PCB Material	FR-4
Warranty	5 years @ Max Tc from the date of manufacture
Safety/compliance	cURus (File # E351548), Class 2 Lighting System, RoHS Compliant

Product Models

Model Number	Number of LEDs	Nominal Input Current* (mA)	Forward Voltage (VDC)	Nominal Power (W)	Dimensions (L x W) (including connector)	Lumens @4000K/80CRI (lm)	Nom. Efficacy @4000K / 80 CRI (lm/W)
VMU045005EC9xxA	12	350	11.5	4.0	1.5" x 0.94" x 0.22"	554	138
VMU045005EC9xxB	12	350	11.5	4.0	5" x 0.71" x 0.22"	605	150
VMU045010EC9xxA	24	350	23.0	8.1		1096	136
VMU045010EC9xxB	24	350	23.0	8.1	11" x 0.71" x 0.22"	1172	145
VMU045010EC9xxC	24	350	23.0	8.1	17" x 0.71" x 0.22"	1172	145

* Max input current 450mA. See specification sheets for detailed information on input current levels.

Part Numbering Key

V M U 045 015 E C **9** **30** A

CRI

Standard: 9 = 90

Color Temperature

Standard: 30 = 3000K
35 = 3500K
40 = 4000K

Made-to-order: 27 = 2700K
50 = 5000K

Some products may not carry CE marking. Contact Fulham for more information.

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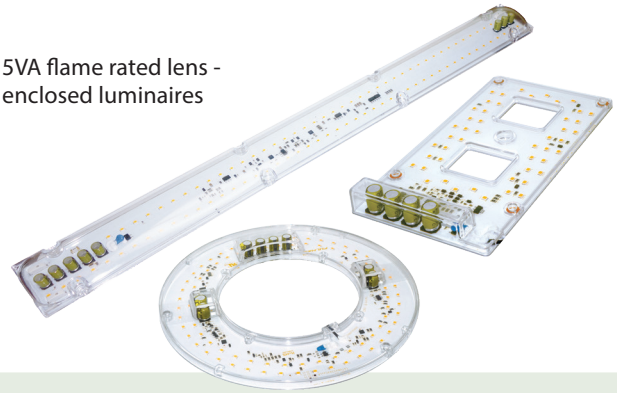
DirectAC LED Retrofit Kits

- Very low flicker, meets Title 24 requirements
- DirectAC Drive with integrated LED board
- Smooth TRIAC/ELV dimming down to 10%
- Kits include installation hardware and labels
- High voltage barrier and 5VA flame rated lens - suitable for open or fully enclosed luminaires
- JA8 Compliant



Specifications

Input Voltage	UNV (120-277VAC) 50/60 Hz
Beam Angle	120°
Estimated Lumen Maintenance (L70)	Circular and Rectangular models: L70 > 54,000hrs / L90 = 20,000hrs Linear models: L90 = 35,000hrs
Flicker Percentage	<30%
Operating Ambient Temp. Range (Ta)	-35°C to +50°C
PCB Material / Lens Material	MCPCB (superior thermal management) / Optical Grade Polycarbonate (5VA Flame rated)
Safety/Compliance	cULus Classified (File# E486779), cURus (File# E486778), RoHS Compliant, ENERGY STAR® Luminaire 2.0 Listed and CSD, JA8 Compliant (2700-4000K @90CRI)
Protections	Surge 2.5V Common and Differential mode; Over Temperature Protection
Warranty	5 Years @ specified Tc from the date of manufacture

Product Models

Model Number	Input Power	Max Lumens @4000K**	CRI	Available CCT	Shape	Dimensions (Inches)	ENERGY STAR Listed*	ENERGY STAR CSD*
TJTUNV010AC9xxB	10W	1065	90	Standard options: 2700K, 3000K, 3500K, 4000K Made-to-order: 5000K	Circular	3.11 Dia. x 0.71 H	✓	✓
VJTUNV010LN9xxB05	10W	1087	90		Linear	5.52 L x 2.21 W x 0.67 H	✓	✓
VJTUNV015LN9xxB11	15W	1644	90		Linear	11.03 L x 2.21 W x 0.67 H	✓	✓
TJTUNV015AC9xxB	15W	1680	90		Circular	5.08 Dia. x 0.75 H	✓	✓
TJTUNV015AR9xxB	15W	1725	90		Rectangular	7.40 L x 4.00 W x 0.71 H	✓	✓
TJTUNV023AC9xxB	23W	2540	90		Circular	6.97 Dia. x 0.71 H	✓	✓
VJTUNV030LN9xxB22	30W	3235	90		Linear	22.06 L x 2.21 W x 0.67 H	✓	✓
TJTUNV034AC9xxB	34W	3685	90		Circular	9.55 Dia. x 0.81 H	✓	✓

* ENERGY STAR designations: Listed = Luminaire 2.0. CSD= Certified Subcomponent Database

Part Numbering Key

V J T UNV 030 LN 9 30 B 22

Shape
AC = Circular
LN = Linear
AR = Rectangular

CRI
9 = 90

Color Temperature
Standard: 27 = 2700K, 30 = 3000K, 35 = 3500K, 40 = 4000K
Made-to-order: 50 = 5000K

Some products may not carry CE marking. Contact Fulham for more information.

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EliteControl FULHAM

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 90 meters, 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.

Download on the App Store

CONTROLS

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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.

2018 PROGRESS Report SELECTION

EC&M Product of the Year 2019 Category Winner

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		

*Made to order.

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/analyze data

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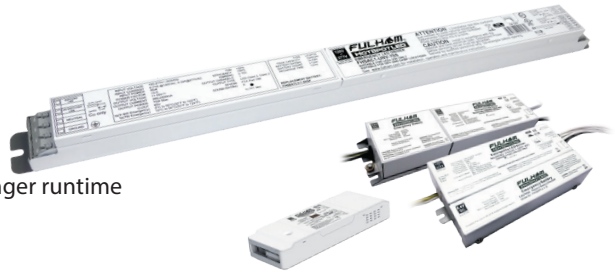
HOTSPOT FULHAM

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

*cURus us, CE ** us

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

*Made to Order

SD = Self-Diagnostic

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-100EU
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***

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HOTSPOT FULHAM

HotSpot Constant Power Programmable Emergency System

- Provides programmable, constant power emergency output for LED modules.
- Advanced features include self-diagnostics and detailed data logging.
- Compatible with Fulham SmartSet Programming Platform and TPSB-100 handheld controller.
- Complete system includes emergency driver and emergency battery.

Specifications

Model Number	**FHSCP-UNV-10P-L-SD**	**RFI/EMI**	FCC Part 15A Non-Consumer
Input Voltage	100 - 277VAC, 50/60Hz	**Number of Output Channels**	1 Channel
Input Current	0.06A Max.	**Output Type**	Class 2
Output Power	1-10W	**Battery Type**	LiFePO4 9.6VDC
Output Current	620mA Max.	**Battery Recharge Time**	12 Hours
Output Voltage Range	16 - 55VDC	**Dimension**	200.4 x 52 x 29.7
Ambient Operating Temperature	10°C to 55°C	**Input Surge Protection**	Line-Neutral 2kV, Line & Neutral-Ground 2kV

HotSpot Constant Power Programmable Battery Packs

Model Number	Max. Load for 90 Min	Capacity	Dimensions (mm) (L x W x H)
FHSBATL3-1.5-SD*	5W	1500mAh	89 x 70 x 25
FHSBATL9-.6-SD*	6W	1800mAh	191 x 48 x 22
FHSBATL3-3-SD	10W	3000mAh	112 x 72 x 33
FHSBATL6-1.5L-SD*	10W	3000mAh	200 x 40 x 23
FHSBATT8-C3L-SD*	10W	3000mAh	235 x 54 x 31

* Contact Fulham for lead time and availability

Why Battery Chemistry Matters

Fulham's HotSpot LED Emergency drivers are designed with safety, reliability, and performance in mind. This is why our newest drivers use LiFePO4 (Lithium Phosphate) batteries. They are non-toxic, contain no heavy metals, and provide the highest levels of safety, efficiency, and high temperature tolerance.

	Lithium Batteries				
Chemistry	**LiFePO4**	LiMn2O4	LiCoO2	NiMH	NiCd
Voltage	**3.2 V**	3.7 V	3.6 V	1.2 V	1.2 V
Volume Energy density	**290Wh/L**	320 Wh/L	500Wh/L	260Wh/L	150Wh/L
Weight Energy density	**130Wh/kg**	135 Wh/kg	200Wh/kg	80Wh/kg	60Wh/kg
Safety	**Good**	Acceptable	Bad	Good	Good
Toxic or green	**Green**	Green	Toxic	Green	Toxic
Tolerance high Tem.	**Good**	Bad	Acceptable	Acceptable	Good
1C Cycle life (<80%)	**>2000**	~ 400	~ 500	~ 500	~ 500
Self-discharge / month	**5%**	8%	8%	35%	30%
Memory effect	**no**	no	no	no	yes
Energy efficiency	**95%**	90%	90%	70%	75%

EMERGENCY

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HOTSPOT FULHAM

HotSpot2 LED Emergency System

The HotSpot2 emergency lighting system drives existing constant current LED modules during power outages. A complete system is composed of an emergency driver, emergency battery, and output wire harness. A wide range of lumen output and run times are available.

HotSpot2 Drivers

Model Number (CEC Title 20)	FHS2-UNV-36L	FHS2-UNV-56S
Input Voltage	100-277VAC	
Input Frequency	50/60Hz	
Input Current	0.1A Max	
LED Currents	100mA - 700mA	
Standby Input Power	<0.8W	
Total LED Power	20W	
Input Surge Protection	2.5KV Ring Wave	
Over Current Protection	Fuse	
Illumination Time	90 - 350 Min	
LED Connection	Series	
LED Output Protection	Self Resetting PTC	
Output Classification	UL1310/Class 2	
Bicolor LED Indicator	Included LED indicator / test switch provides automatic system status updates	
Output Voltage	12 - 55VDC	12 - 56VDC
Dimension (L x W x H)	5.34" x 1.69" x .93"	9.5" x 1.18" x 1"

HotSpot2 Emergency Battery Packs

Model Number	Dimensions (L x W x H)	Chemistry	Capacity (mAh)	Battery Count	Recharge Time	Max. Load for 90 min. (W)	
						-36L	-56S
FHSBATT8-AA.9	5.23" x 2.5" x 0.7"	NiCd	900	8 Cells	24Hrs	4	4
FHSBATL3-1	3.48" x 2.35" x 0.99"	LiFePO4	1000	3 Cells	24Hrs	4	4
FHSBATL6-.6	5.23" x 1.87" x 0.85"	LiFePO4	1200	6 Cells	24Hrs	6	4
FHSBATL3-1.5	3.48" x 2.76" x 0.99"	LiFePO4	1500	3 Cells	24Hrs	8	8
FHSBATL3-1.5S	8.87" x 1.11" x 0.96"	LiFePO4	1500	3 Cells	24Hrs	8	8
FHSBATL9-.6	7.52" x 1.87" x 0.85"	LiFePO4	1800	9 Cells	24Hrs	10	8
FHSBATCC3-3†	6.00" x 3.60" x 1.55"	LiFePO4	3000	3 Cells	24Hrs	14*	14*
FHSBATL6-1.5	5.70" x 2.76" x 0.99"	LiFePO4	3000	6 Cells	24Hrs	16	14
FHSBATL6-1.5L (with optional mounting bracket)	7.89" x 1.56" x 0.92"	LiFePO4	3000	6 Cells	24Hrs	16	14
	9.07" x 1.63" x 0.93"						
FHSBATL6-1.5S	16.67" x 1.11" x 0.96"	LiFePO4	3000	6 Cells	24Hrs	16	14
FHSBATT8-C3	4.15" x 3.29" x 2.11"	NiCd	3000	8 Cells	24Hrs	16	16
FHSBATT8-C3L (with optional mounting bracket)	7.89" x 2.17" x 1.04"	NiCd	3000	8 Cells	24Hrs	16	16
	9.07" x 2.18" x 1.07"						
FHSBATL3-3	4.39" x 2.82" x 1.3"	LiFePO4	3000	3 Cells	24Hrs	16	16
FHSBATT8-D4***	4.89" x 3.84" x 2.72"	NiCd	4000	8 Cells	24Hrs	20	20
FHSBATL6-3	7.52" x 2.82" x 1.3"	LiFePO4	6000	6 Cells	32Hrs	20**	20**
FHSBATL6-3L (with optional mounting bracket)	7.94" x 2.17" x 1.21"	LiFePO4	6000	6 Cells	32Hrs	20**	20**
	9.13" x 2.21" x 1.28"						

† Cold Pack Battery: -20°C minimum operating temperature * Rated 10W for Canada ** Rated 16W for Canada *** Made to Order

HotSpot2 Accessories

Wiring harnesses:

Used to set the output current to the LED module during emergency operation.
Using lower current will allow longer run times.

Model Number	mA	Model Number	mA	Model Number	mA
FHS-HARNESS-100	100	FHS-HARNESS-250	250	FHS-HARNESS-550	550
FHS-HARNESS-125	125	FHS-HARNESS-300	300	FHS-HARNESS-600	600
FHS-HARNESS-150	150	FHS-HARNESS-350	350	FHS-HARNESS-650	650
FHS-HARNESS-175	175	FHS-HARNESS-400	400	FHS-HARNESS-700	700
FHS-HARNESS-200	200	FHS-HARNESS-450	450		
FHS-HARNESS-225	225	FHS-HARNESS-500	500		

FHS-TSTWL-BC	IP67, bicolor LED Indicator / test switch for use in exposed, outdoor-rated luminaires
FHS-EXT12M	12" battery extension cable
FHS-EXT-48-TST	48" test switch extension cable

Also available: battery mounting brackets and wallplates. For more information, visit www.fulham.com

Limited Warranty

Length of Warranty and Coverage

Warranty period will be determined from the date of manufacture as indicated by the date code stamped on each product and will be covered as follows:

EliteControl™ - Hardware: 5 years
FireHorse™ - 2 to 5 Years
FREELITE™ - 5 Years
HighHorse™ Electronic HID Ballast - 3 Years
HighHorse™ Induction - 5 to 7 Years (If installed per instructions)
HotSpot™ - 3 to 5 Years*
IceHorse™ Ballast - 3 Years
LongHorse™ Electronic Remote Fluorescent Ballast - 5 Years
LumoSeries™ - 5 Years
PONY™ Electronic Ballast - 2 Years
PONY™ Electronic SugarCube™ - 2 Years
PONY™ Electronic Transformer - 2 Years
RaceHorse™ Electronic Ballast – 70ºC 5 Years, 90ºC 3 Years
SunHorse™ Ballast - 3 Years
SineHorse™ Ballast - 3 Years
ThoroLED™ Drivers - 2 to 5 Years
ThoroLED™ Modules/Engines - 3 to 5 Years*
ThoroLED™ Retrofit - 5 Years*
ThoroLED™ Luminaire - 5 Years*
Vizion™ Modules/Engines - 5 Years*
Vizion™ Retrofit - 5 Years*
Vizion™ Luminaire - 5 Years*
WorkHorse™ Electronic Fluorescent Ballast - 5 Years
WorkHorse LED™ Drivers - 5 Years

* Covered defects for Vizion, ThoroLED, and HotSpot LED modules. For purposes of this limited warranty, a defect in a module shall be defined as one or more individual LEDs dark at initial installation or greater than 10% of individual LEDs dark during the Warranty Period. Replacement and/or repair of individual Vizion, ThoroLED, or HotSpot LED Modules does not extend this limited warranty beyond the original Warranty Period.

Warranty Conditions

Fulham extends this express limited warranty only to the original purchaser or to the first user. This constitutes the complete warranty for the product. Fulham is not responsible for any auxiliary equipment not furnished by Fulham, which is used in connection with or attached to the product, or for operation of the product with any auxiliary equipment. Damage to all such equipment is expressly excluded from this warranty. In addition, Fulham is not responsible for any damage to the product resulting from the use of auxiliary equipment not supplied by Fulham.

Warranty Conditions Not Covered

This warranty is not applicable to any product manufactured by Fulham not installed and operated in accordance with:

* Underwriters Laboratories Inc. (UL)
* National Electrical Code (NEC)
* Standards set by the International Electrotechnical Commission (IEC)
* European Norms Electrical Certification (ENEC)
* Applicable international federal, state and local codes
* Remote applications beyond maximum distance noted on product specification sheet. If maximum distance is not provided, remote application is not covered.
* Fulham specific, most recent instructions and application guidelines provided for installation of the product

Additionally, this warranty is not applicable to Fulham manufactured products that have been subjected to excessive stress including, but not limited to, operating temperatures exceeding the recommended maximum temperature on any part of the product.

Obtaining Warranty Service

If within the warranty period it appears that the installed product does not meet the warranty conditions specified, the purchaser must notify Fulham of its warranty claim. Fulham or its authorized service company will provide warranty service directly to you.

General Provisions

All responsibilities regarding the product are set forth by this warranty. Replacement or repairs of the product is your exclusive remedy. For purposes of clarity, “replacement or repairs of the product” does not include any removal or reinstallation costs or expenses, including, without limitation, any labor costs or expenses, shipping costs to return non-conforming products or any damages that may occur during the return of product to Fulham. If Fulham chooses to replace the product and is not able to do so because it has been discontinued or is not available, Fulham may replace it with a comparable product. Fulham reserves the right to use new, reconditioned, refurbished, repaired or remanufactured products or parts in the repair or replacement of any product covered by this warranty. If no replacement product is available, Fulham, solely at its discretion, may issue a credit for the product, prorated for its remaining warranty life.

This warranty is given in lieu of all other express warranties. Implied warranties, including those without limitation, warranties of merchant ability and fitness for a particular purpose, are limited to the duration of this limited warranty. Fulham shall in no event be liable for damages in excess of the purchase price of the product, for any loss of use, loss of time, inconvenience, commercial loss, lost profits or savings or other incidental, special or consequential damages arising out of the use or inability to use such product, to the full extent such may be claimed by law.

Local Exceptions

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, therefore the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and purchasers may have other rights that vary by jurisdiction.

Returned Materials Authorizations (RMA)

Customers shall contact Fulham directly for all RMA’s.

After receiving the RMA, the user shall promptly return the product at the user’s expense to Fulham after receiving instructions as to when and where to ship product. Failure to follow this procedure shall void this warranty. Should the number of pieces received by Fulham differ from the RMA either +/-, the customer will be notified and adjustments will be made at that time.

Fulham reserves the right to examine all failed products to determine the cause of failure and patterns of usage and reserves the right to be the sole judge as to whether any products are defective and covered under this warranty.

Contact Information

Fulham Europe
+31.72.572.3000
warranty@fulham.com

Effective: August 1st, 2018

Global Locations & Contacts

Visit ***www.fulham.com*** for product information, sales representative contact info, technical documentation, and more.

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FULHAM®
Harness the Horsepower