

LED lighting for hazardous areas

CROUSE-HINDS
SERIES

Champ MLLA

LED lighting for hazardous areas



Safe. Reliable. Efficient.
2 models – 3,700 & 7,900 lumens

EATON

Powering Business Worldwide



Champ® MLLA linear LEDs

Safe. Reliable. Efficient.

Featuring a broad range of LED luminaires for harsh and hazardous environments, Eaton's Crouse-Hinds delivers lighting solutions that perform reliably in even the worst operating conditions. This reduces your energy, maintenance and manpower costs.



Why LED?

Useful life

Rated life is up to 60,000 hours of maintenance-free and safe operation

Energy efficiency

LED average energy consumption is 65% less than T12, T8 and T5HO fluorescent fixtures

Start/restart time

Instant illumination vs. 10 minute restrike time for fluorescent

Light quality

Higher color rendering and color temperature compared to fluorescent

Environmental benefits

Mercury-free LED eliminates disposal costs and lower energy consumption for a smaller carbon footprint

Why Crouse-Hinds?

Industry-best reliability

Built to withstand extreme temperatures, vibration, water and dust

Thermal management

Effective heat sinking ensures longer life

Quality of light

Custom optics designed to maximize light distribution and intensity

Retrofit compatibility

LED fixtures are compatible with Pauluhn™ DuraPro, MagnaPro, Rig-A-Lite™ and Snelson® fluorescent fixtures

Servicable drivers

Easy access to drivers for service or replacement

Design features

Designed for harsh and hazardous. Champ MLLA linear LED luminaires are engineered to handle demanding conditions. The MLLA stands up to high vibration, hose down, shock and impact, while delivering long life and high lumen performance for up to 20 years.

Custom optics:

- Standard wide (120°) beam spread for control room and indoor application maximizes illumination on wall panels
- Narrow (80°) beam spread option for targeted illumination; avoids spillage and light loss

Comprehensive certification:

- Single model certified for use in Class I, Division 2 and Class II, Division 1 harsh and hazardous applications

Quick & easy installation:

- Easy access to drivers and wiring
- No custom brackets or hardware needed
- Seven mounting options available

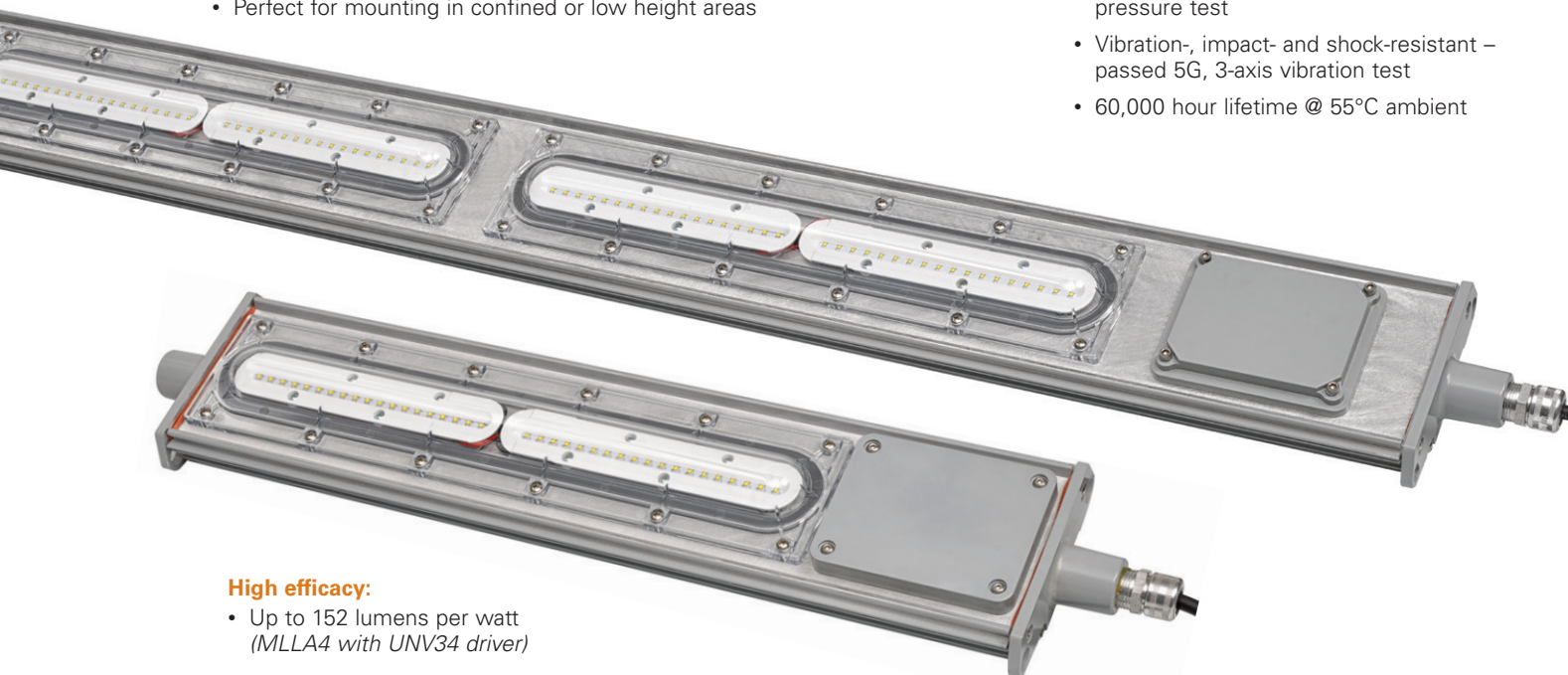


Slim profile:

- 2.7" fixture height (excluding mounting brackets)
- Perfect for mounting in confined or low height areas

Built to last:

- Ingress protection from hose down water or diesel fuel in harsh operational conditions – passed 2,000 psi high pressure test
- Vibration-, impact- and shock-resistant – passed 5G, 3-axis vibration test
- 60,000 hour lifetime @ 55°C ambient



High efficacy:

- Up to 152 lumens per watt (MLLA4 with UNV34 driver)

Why choose Champ MLLA LEDs?

Reliable lighting. MLLA LED luminaires are engineered to deliver high lumen output and maintenance-free long life in the toughest conditions.



MLLA4 vs. 2-lamp T5HO



59%
ENERGY
EFFICIENCY



64%
TOTAL COST
OF OWNERSHIP



100%
MAINTENANCE
REDUCTION

Assumptions: Calculations based on overall life of the LED system. Energy cost of \$.09 per kilowatt; 24 hour per day operation; labor rate of \$75 each for 2 workers; average time for fixture maintenance of 1 hour.

Champ® MLLA linear LED luminaires

The Champ MLLA Linear LED by Eaton's Crouse-Hinds is specifically designed to replace fluorescent T12, T8 and T5HO lighting in harsh and hazardous applications. The rugged and durable design features the industry's most versatile and flexible mounting options. The Champ MLLA is the ideal solution for high vibration, impact and hose down applications.

Applications:

Oil and gas refineries, petrochemical facilities, food and beverage facilities, platforms, loading docks, tunnels, outdoor wall and stanchion mounted general area lighting, and where flammable vapors, gases, ignitable dusts, fibers or flyings are present.

Key features & benefits:

- High efficacy: up to 152 LPW (MLLA4 with UNV34 driver)
- -40°C to +65°C ambient operating temperature (standard model)
- Low profile (<3" height)
- Versatile ceiling/swivel, wall, flush, pole and pendant mounting options
- Wide and narrow optics for uniform illumination
- Four points of secondary retention
- 2,000 psi high pressure hose rated
- High vibration resistance
- Surge protection: 4kV line to line, 6kV line to earth
- Emergency battery back-up (90 minutes) and surge protection options (up to 10kV)† on DLL models
- DesignLights Consortium® Qualified (some models are not DLC qualified or pending)*
- 5 year fixture warranty†

‡ One year warranty for "EM" models

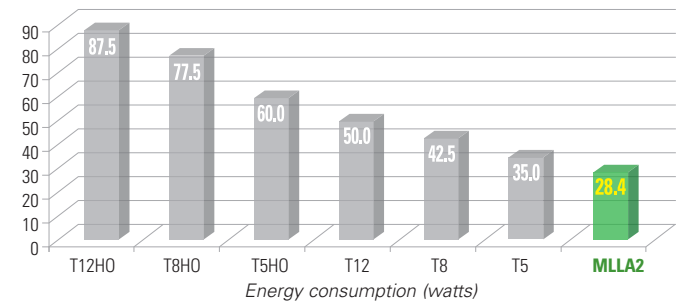
* Refer to www.designlights.org Qualified Products List under Family Models for full listing details. Not all models are approved for all application categories.

† Refer to page the authorized distributor price book for Crouse-Hinds standard Terms and Conditions.



Energy consumption comparison

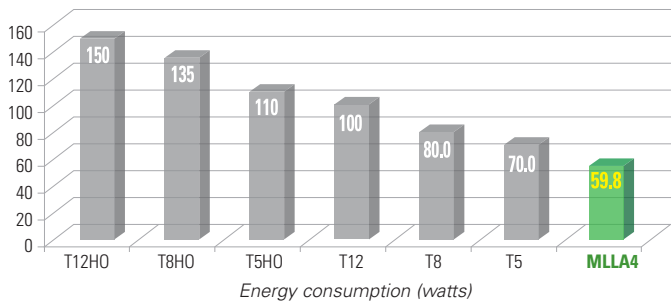
2 foot MLLA linear LED vs. fluorescent



Model	Typical lumens	Wattage	Lumens per watt	Equivalent HID luminaire	Typical energy savings / lifetime
MLLA	3,700	28.4	130	T12HO	Up to 67%
				T8HO	Up to 63%
				T5HO	Up to 52%
				T12	Up to 42%
				T8	Up to 32%
				T5	Up to 17%

All luminaires in the comparison are 2 lamp, 2 foot, UNV1

4 foot MLLA linear LED vs. fluorescent



Model	Typical lumens	Wattage	Lumens per watt	Equivalent HID luminaire	Typical energy savings / lifetime
MLLA4	7,900	59.8	132	T12HO	Up to 64%
				T8HO	Up to 60%
				T5HO	Up to 50%
				T12	Up to 46%
				T8	Up to 32%
				T5	Up to 22%

All luminaires in the comparison are 2 lamp, 4 foot, UNV1

Specifications

Certifications:

NEC standards:

- Class I, Division 2, Groups A, B, C, D
- Class II, Division 1, Groups F, G
- Class I, Zone 2
- Class III
- NEMA 4X; IP66
- Marine and Wet Locations

UL standards:

- UL844 Electrical Fixture Hangers for Hazardous Locations
- UL1598 Luminaire
- UL1598A Luminaire for Installation on Marine Vessels
- UL 8750 Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products
- UL 50E Enclosures for Electrical Equipment, Environmental Considerations
- UL924 for Emergency Lighting

CSA standard:

- C22.2 No. 137 and 250

Additional certifications:

- ABS design assessed

Mounting:

Versatile mounting options:

- Flush back mount
- Swivel/ceiling back mount
- Offset ceiling mount
- Offset wall mount
- Pole mount
- Pendant mount

Easily retrofit to:

- Existing Pauluhn™ DuraPro and MagnaPro fluorescent light fixtures
- Rig-A-Lite™ and Snelson® C1D2 fluorescent lighting fixtures

Materials:

Housing:

- Copper-free aluminum
- Optional Corro-free™ epoxy powder coat

Lens:

- Glass or polycarbonate
- Diffused glass or polycarbonate



Electrical ratings:

UNV1	Input power (watts)	Input amps at 120-277 VAC	UNV34	Input power (watts)	Input amps at 347-480 VAC
MLLA2	28.4	0.23-0.11	MLLA4	42.2	0.09-0.13
MLLA4	62.0	0.51-0.23			

UNV1	
Voltage range, VAC	120-277V at 50/60 Hz
Voltage range, VDC	127-300V

UNV34	
Voltage range, VAC	347-480V at 50/60 Hz

All models	
Power factor	≥0.90
THD	≤15%

Temperature codes:

Ambient temperature	Min. temp. wire supply	Class I, Div. 2	Class II, Div. 1	Simultaneous rating Class I, Div. 2, Class II, Div. 1
40°C	60°C	T6	T6	T6
55°C	75°C	T5	T5	T5
65°C	90°C	T5	T5	T5

Weights:

Luminaire	lbs.	kg.
MLLA2	12.5	5.7
MLLA4	22.5	10.2



Battery back-up

Champ MLL linear LED luminaires are now available with an integral battery back-up module. Virtually the same size as the standard 4 foot model and up to 90 minutes of emergency lighting to keep your facility and people safe.



Model	EM output	Normal output
MLLA4-UNV1 EM1	1,850 lumens (120-277V)	7,327 lumens (120-277V)

Applications:

- Egress and emergency lighting for areas requiring uninterrupted lighting during power failure
- Hazardous rated indoor and outdoor emergency lighting in manufacturing plants, heavy industrial, chemical and petrochemical facilities, platforms, loading docks and parking areas.

Key features:

- Operating ambient: 0°C to +40°C
- 90 minute runtime in emergency mode
- 7,227 lumen output for normal operation
- 1,850 in emergency mode
- 50,000 hours rated life @ 40°C
- IP66 rated enclosure
- LED indicator to check battery operation
- Nickel-cadmium battery
- 1 year warranty

Certifications and compliances:

NEC/CEC

- Class I, Division 2, Groups A, B, C, D
- Class II, Division 2, Groups F, G
- Wet Location, IP66, Type 4X

CSA Standard

- CSA C22.2 Nos. 137, 141

UL Standards

- UL844 Electrical Fixture Hangers for Hazardous Locations
- UL1598 Luminaire
- UL1598A Luminaire for Installation on Marine Vessels
- UL8750 Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products
- UL50E Enclosures for Electrical Equipment, Environmental Considerations

Electrical ratings:

UNV1	Input power (watts)	Input amps at 120-277 VAC
MLLA4-EM	55.9	0.21-0.47

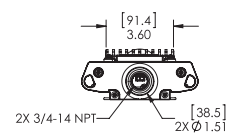
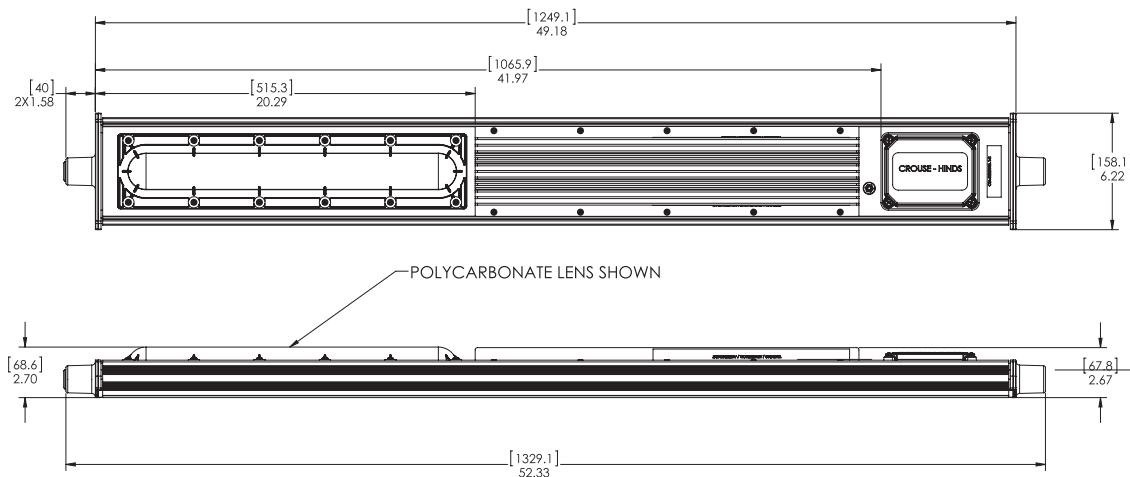
Voltage range, VAC	120-277V at 50/60 Hz
Voltage range, VDC	127-300V

Power factor	≥0.90
THD	≤10%

Temperature codes:

Ambient temperature	Min. temp. wire supply	Class I, Div. 2	Class II, Div. I	Simultaneous rating Class I, Div. 2, Class II, Div. 1
40°C	60°C	T5	T6	T5

Dimensions:



Ordering information

Part number example

MLLA4N-UNV1-S903-TF-P

Champ MLLA linear LED, warm white, 4 foot, ¾" hubs, 80° narrow light pattern, 120-277 VAC driver, clear polycarbonate lens, through feed hubs, gray epoxy paint

MLLA W 4 N – UNV1 – S903 – TF – P –

Series

MLLA	Champ MLLA linear LED luminaire
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Color temperature

BLANK	Cool white, 5000K, 70 CRI
N	Neutral white, 4000K, 70 CRI
W	Warm white, 3000K, 80 CRI

*EM1 emergency back up is available in cool white, 5000K only.

Length/lumens

4	4 ft. length, 7,900 lumens
2*	2 ft. length, 3,700 lumens

*Not available with UNV34 voltage option or EM1 emergency back up option.

Optics

BLANK	Wide (120°)
N	Narrow (80°)

Voltage

UNV1	120-277 VAC; 127-300 VDC
UNV34*	347-480 VAC

*Not available in 2 ft. length or EM1 emergency back up option.

Lens

BLANK	Clear glass
S891	Diffused glass
S903	Clear polycarbonate
S903D	Diffused polycarbonate

Finish

BLANK	Natural aluminum
P	Painted (gray, epoxy)
WH	Painted (white, epoxy)

Emergency backup

BLANK	Standard model (no battery back-up)
EM1*	Integrated emergency battery back-up

* One year warranty. Remote EM Kit also available, 120-277 VAC only. Contact factory for more information. All EM1 models are painted, gray epoxy is standard.

Cord options

TF	Pull wire included in the fixture
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*Cannot be combined with "TF" suffix. Standard models only, not available with EM options.

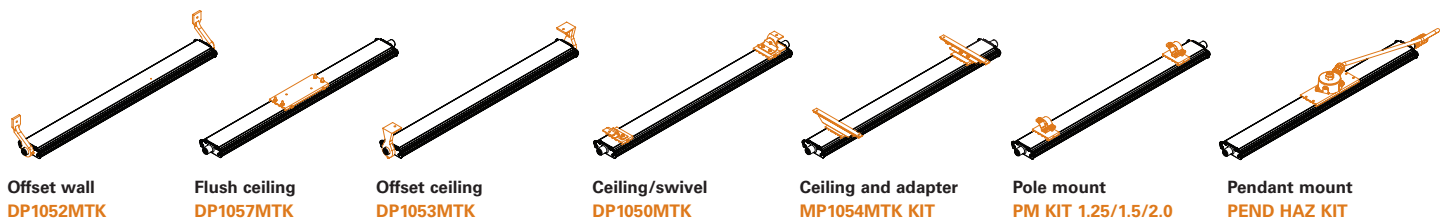
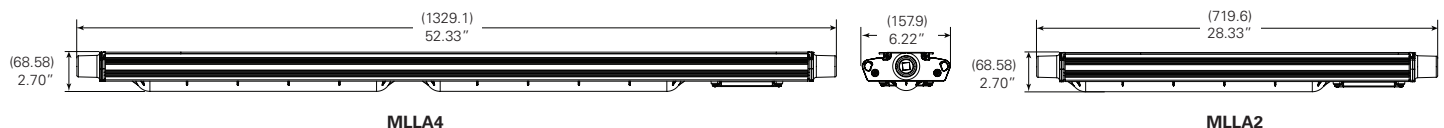
Accessories (ordered separately)

DP1057MTK	Flush/back mount back plate (compatible with DuraPro)	PEND HAZ KIT	Pendant mount kit
DP1050MTK	Ceiling/swivel mount (compatible with DuraPro)	SS KIT	Safety chain kit
DP1053MTK	Ceiling/wall mount offset (compatible with DuraPro)	PM KIT 1.25	Pole mount kit, 1.25" conduit
MP1054MTK KIT	Ceiling mount bracket and adapter kit (compatible with MagnaPro)	PM KIT 1.5	Pole mount kit, 1.50" conduit
DP1052MTK	Offset wall mount (compatible with DuraPro)	PM KIT 2.0	Pole mount kit, 2.00" conduit

Replacement driver kits (ordered separately)

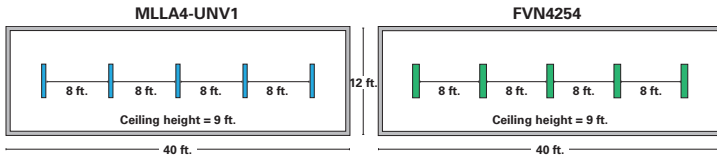
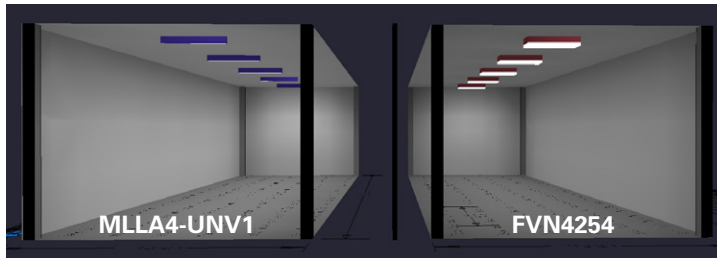
MLLA2-UNV1-DRIVER KIT	120-277 VAC driver replacement for 2ft linear (30W driver: EUC030S050DTM)
MLLA4-UNV1-DRIVER KIT	120-277 VAC driver replacement for 4ft linear (60W driver: EUC060S105DTM)
MLLA4-UNV34-DRIVER KIT	347-480 VAC driver replacement for 4ft linear (60W driver: PS2569R-Y-751)
MLL EM1 DRIVER KIT	120-277 VAC driver replacement kit for integral emergency battery back up option

Dimensions & mounting options:



Photometrics: control room/pump shed

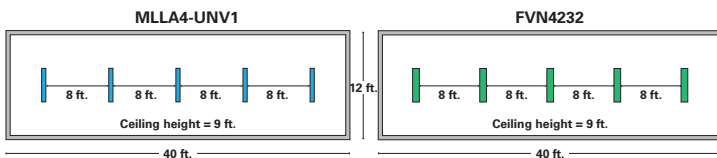
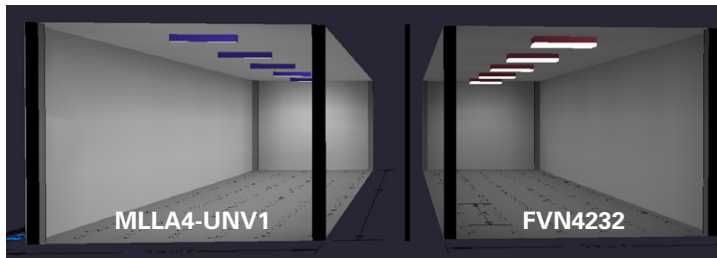
4 foot MLLA LED with 120° optics vs. 4 foot 2 lamp T5HO FVN



Illuminance (Fc)	MLLA4-UNV1	FVN4254
Average	44.87	33.78
Maximum	55.40	42.50
Minimum	25.20	18.90
Average/minimum	1.78	1.79
Maximum/minimum	2.20	2.25

Higher average illumination than 2 lamp T5HO FVN and up to 50% energy savings

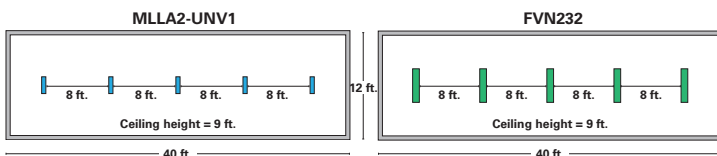
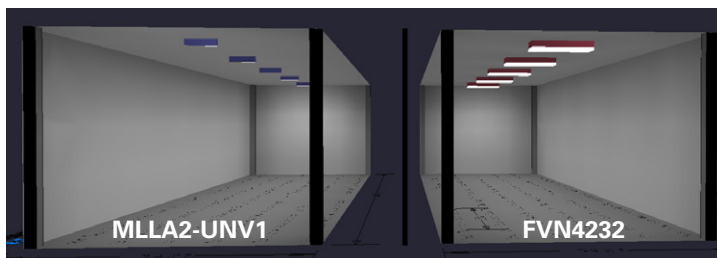
4 foot MLLA LED with 120° optics vs. 4 foot 2 lamp T8 FVN



Illuminance (Fc)	MLLA4-UNV1	FVN4232
Average	44.89	22.46
Maximum	55.50	28.30
Minimum	25.20	12.40
Average/minimum	1.78	1.81
Maximum/minimum	2.20	2.28

Twice the average illumination of 2 lamp T8 FVN

2 foot MLLA LED with 120° optics vs. 4 foot 2 lamp T8 FVN



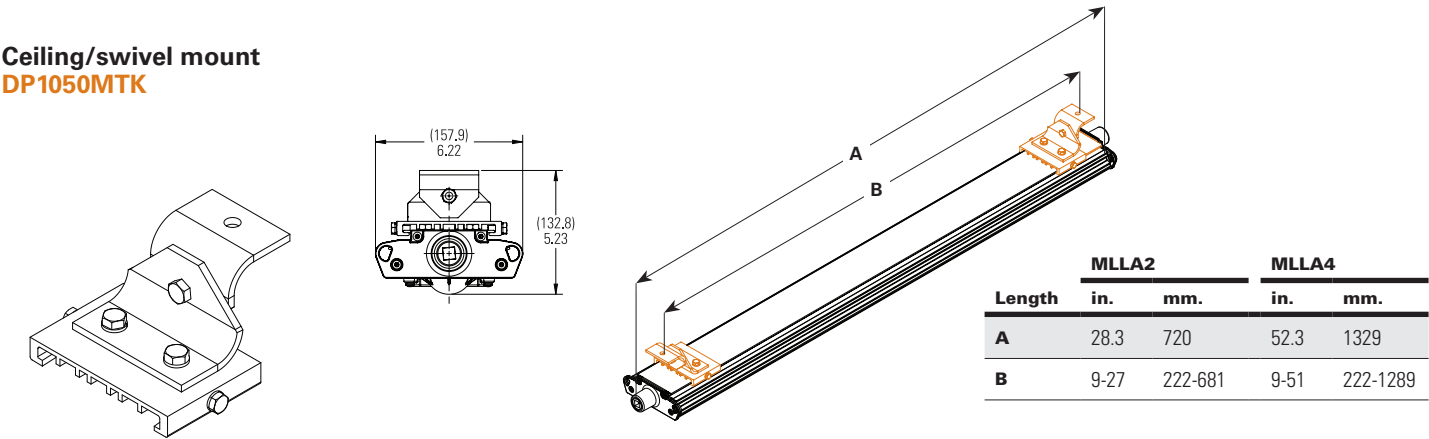
Illuminance (Fc)	MLLA2-UNV1	FVN4232
Average	22.57	22.04
Maximum	27.90	27.70
Minimum	12.70	12.00
Average/minimum	1.78	1.84
Maximum/minimum	2.20	2.31

Equivalent illumination to a 2 lamp T8 FVN and up to 50% energy savings

Mounting options

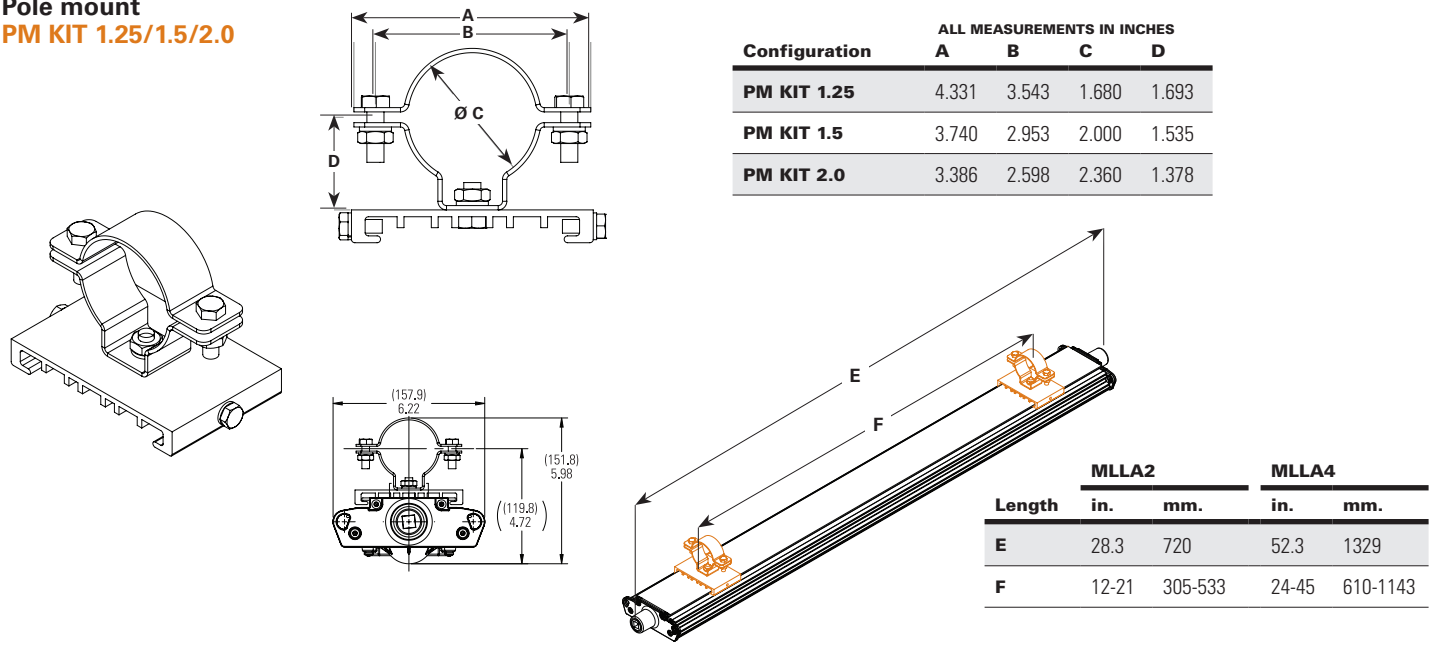
Ceiling/swivel mount

DP1050MTK



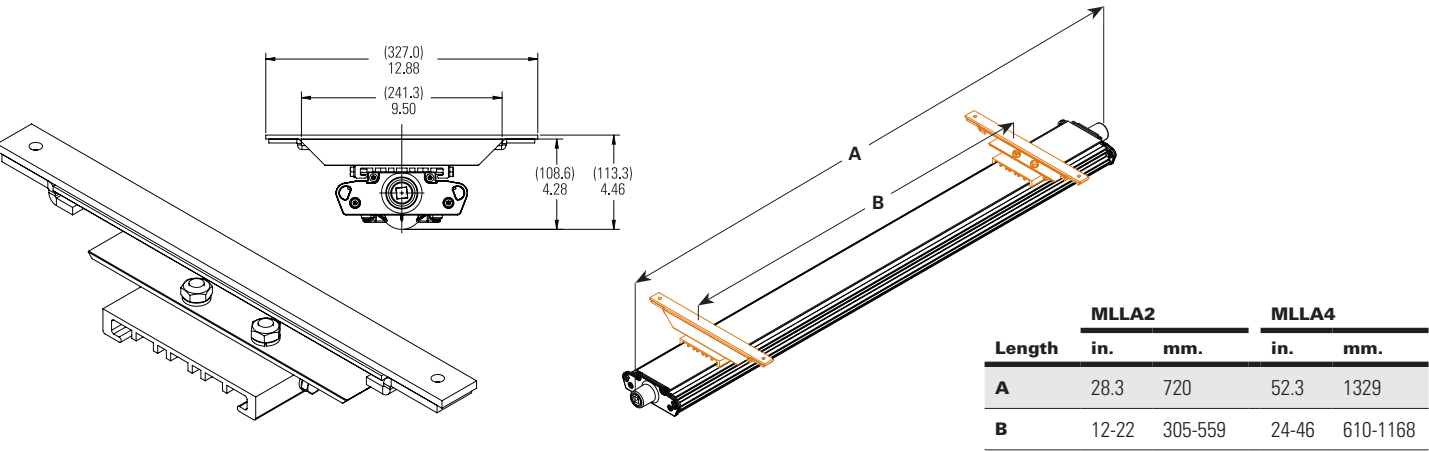
Pole mount

PM KIT 1.25/1.5/2.0



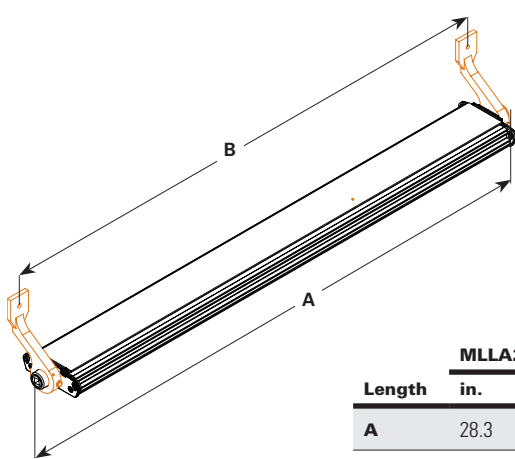
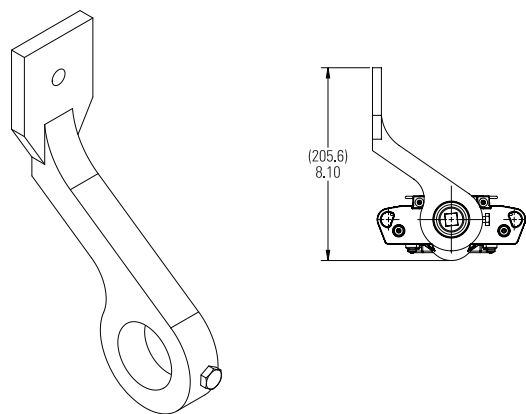
MagnaPro mount

MP1054MTK KIT



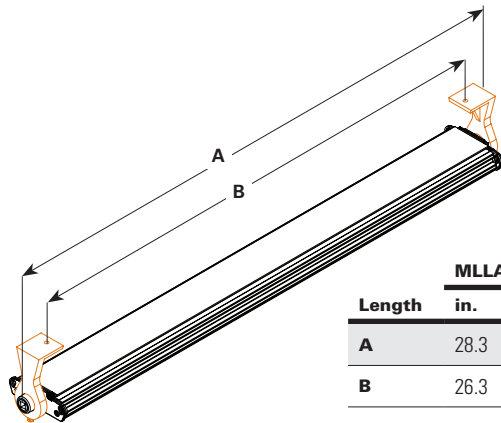
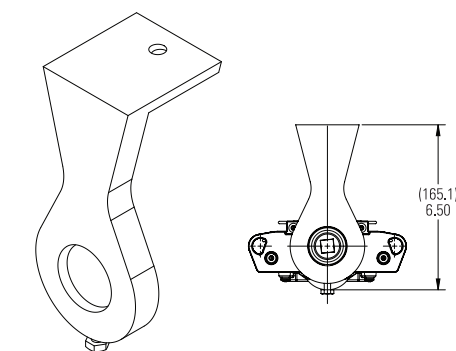
Mounting options

Offset wall DP1052MTK



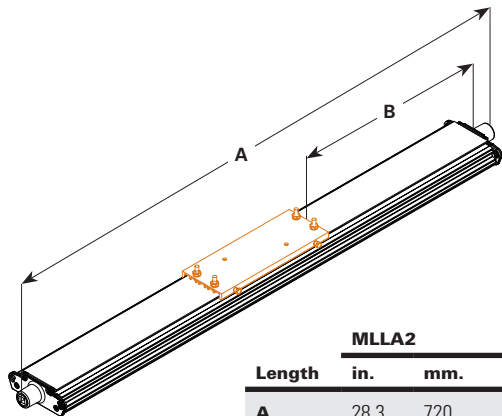
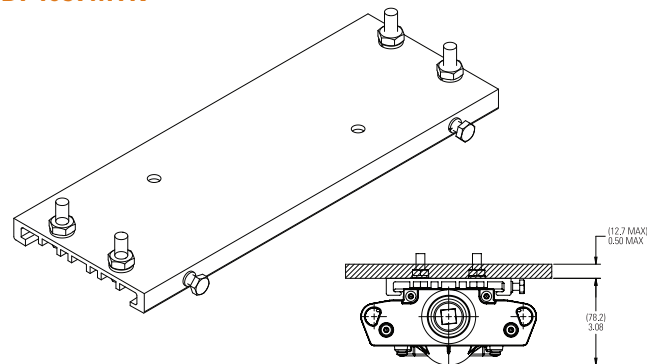
Length	MLLA2		MLLA4	
	in.	mm.	in.	mm.
A	28.3	720	52.3	1329
B	26.3	669	50.3	1278

Offset ceiling/wall mount DP1053MTK



Length	MLLA2		MLLA4	
	in.	mm.	in.	mm.
A	28.3	720	52.3	1329
B	26.3	584	47.0	1194

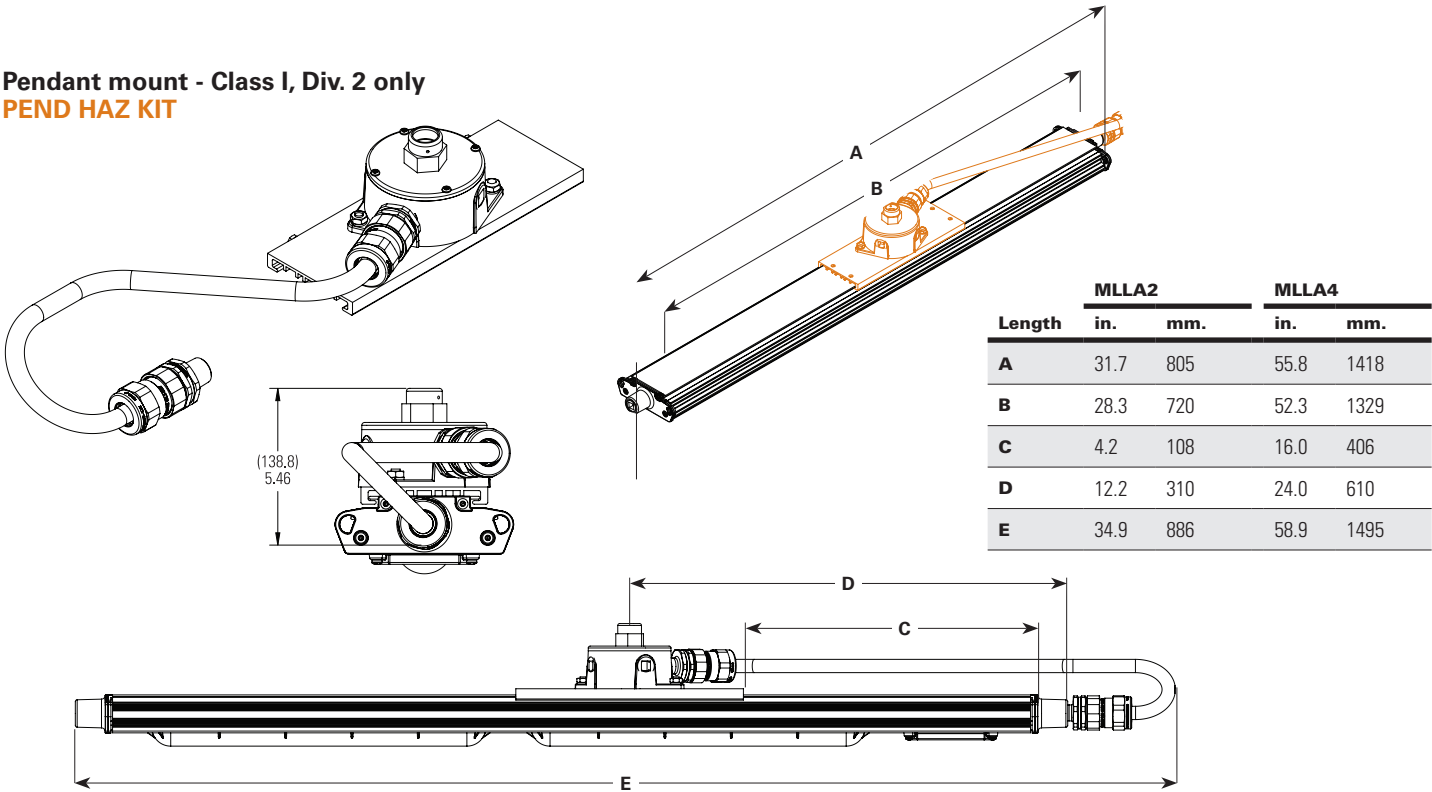
Flush ceiling DP1057MTK



Length	MLLA2		MLLA4	
	in.	mm.	in.	mm.
A	28.3	720	52.3	1329
B	6.2	157.5	18.2	462

Mounting options

Pendant mount - Class I, Div. 2 only
PEND HAZ KIT



**U.S. (global headquarters):
Eaton's Crouse-Hinds business**

1201 Wolf Street
Syracuse, NY 13208

(866) 764-5454
FAX: (315) 477-5179
FAX Orders Only:
(866) 653-0640

crousecustomerctr@eaton.com

Eaton's B-Line business

509 West Monroe Street
Highland, IL 62249

800-851-7415
FAX: 618-654-1917
Eaton.com/b-lineseries

IEC Electrical

(CEAG products)

49 (0) 6271 806-500
FAX: 49 (0) 6271 806-476

Info-ex@eaton.com

Airport Lighting

866-764-5454

CrouseCustomerCTR@Eaton.com

Mexico/Latin America/Caribbean

52-555-804-4000
FAX: 52-555-804-4020

ventascentromex@eaton.com

Haz Area Communications

(MEDC, Hernis, Oxalis, FHF Sonix)

44 (0) 1623 444400
FAX: 44 (0) 1623 444531

MEDCadmin@Eaton.com

Canada

Toll Free: 800-265-0502
FAX: (800) 263-9504
FAX Orders only: (866) 653-0645

China

86-21-2899-3600
FAX: 86-21-2899-4055

cchsales@cooperindustries.com

Process instrumentation

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FAX: 44 (0) 1582 422283

enquiry@mtl-inst.com

Eaton Middle East

9714-8066100
FAX: 9714-8894813

CHBL-ME@eaton.com

Australia

61-2-8787-2777
FAX: 61-2-9609-2342

CEASales@cooperindustries.com

For more information:

If further assistance is required, please contact an authorized Eaton Distributor, Sales Office, or Customer Service Department.

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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