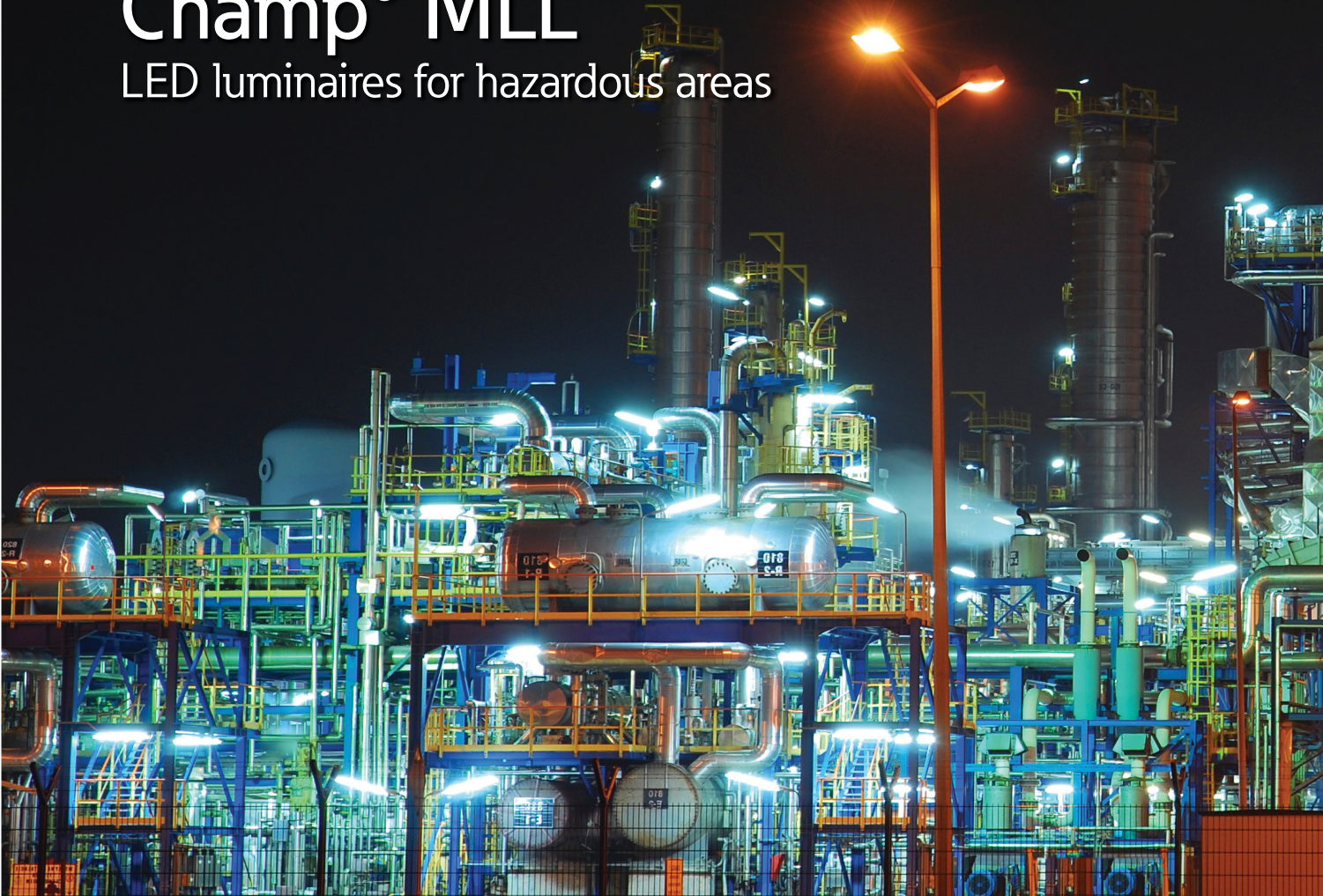


LED lighting for hazardous areas
Champ® MLL LED Luminaires

CROUSE-HINDS
SERIES

Champ® MLL

LED luminaires for hazardous areas



EATON

Powering Business Worldwide



Champ® MLL Series LEDs

Safe. Reliable. Efficient.

Featuring the industry's broadest range of LED luminaires for harsh and hazardous environments, Eaton's Crouse-Hinds can deliver a lighting solution that performs reliably in even the worst operating conditions. All the while reducing 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

Why Champ® MLL LED?

Designed for harsh and hazardous. Champ MLL linear LED luminaires are engineered to handle demanding conditions. The MLL 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

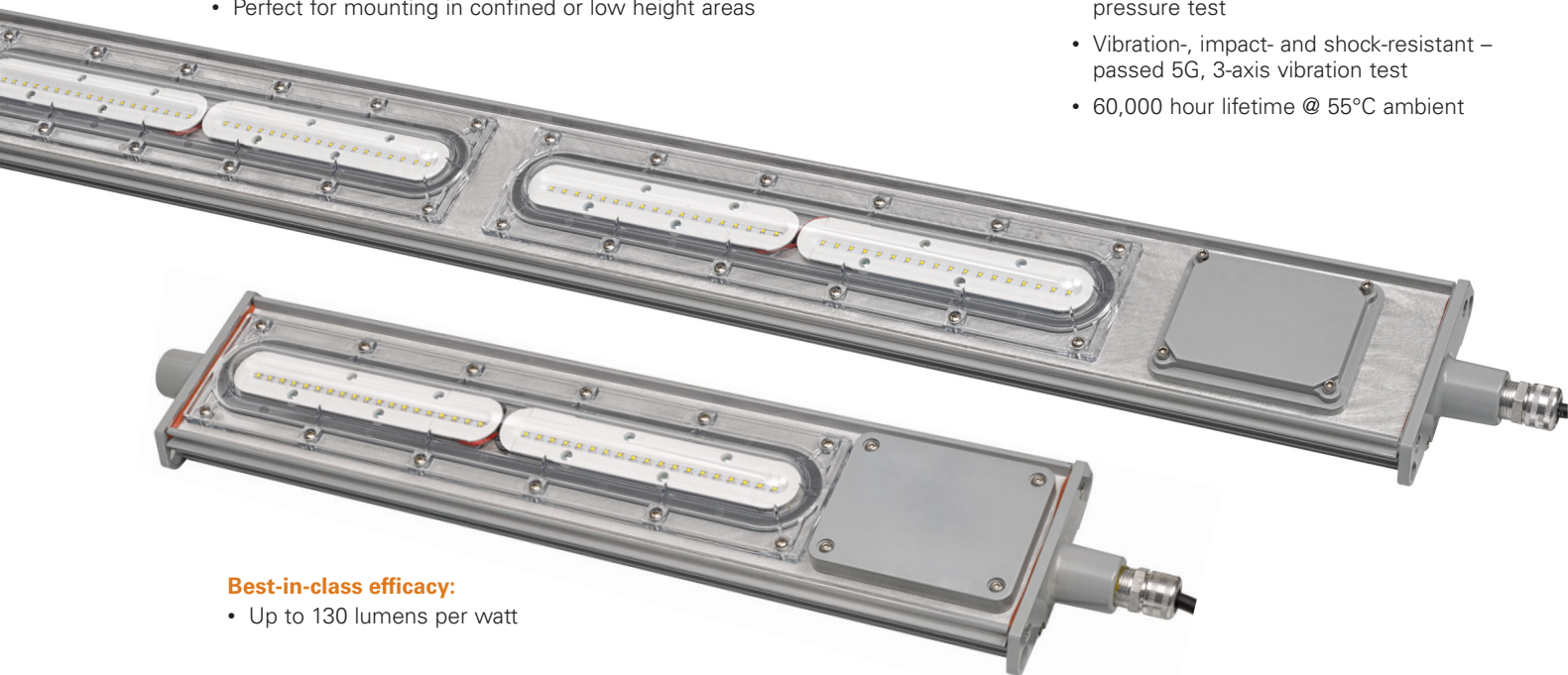


Slim profile:

- 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



Best-in-class efficacy:

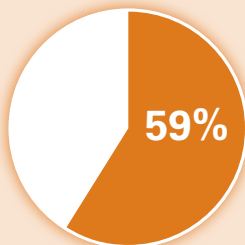
- Up to 130 lumens per watt

LED vs. fluorescent savings at a glance

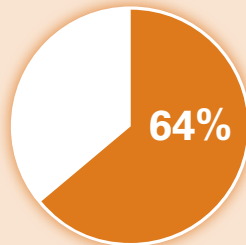
Why are so many facilities making the switch from fluorescent to LED?

The numbers say it all.

MLL4 vs. 2-lamp T5HO



59% REDUCTION IN ENERGY COSTS



64% LOWER 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 2 hours.

Champ® MLL Series LED Luminaires

The Champ MLL 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 MLL 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:

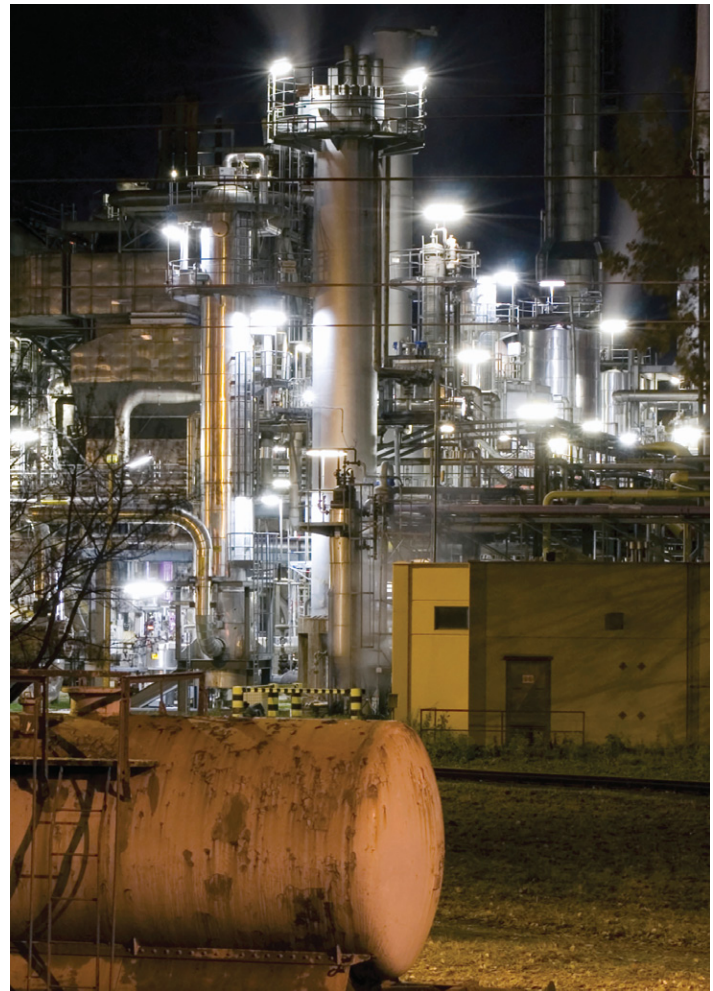
- Industry-leading efficacy: up to 130 LPW
- -40°C to +65°C ambient operating temperature (standard model)
- Low profile (<3" height)
- Versatile ceiling/swivel, wall, flush, pole and pendant mounting options
- Wide and narrow optics for uniform illumination
- Four points of secondary retention
- 2,000 psi high pressure hose rated
- High vibration resistance
- Emergency battery back-up (90 minutes) and surge protection options (up to 10kV)‡
- DesignLights Consortium® Qualified (some models are not DLC qualified)*
- 5 year fixture warranty†



‡ One year warranty

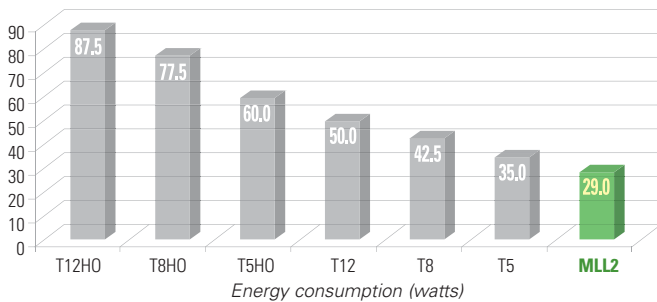
* Refer to www.designlights.org Qualified Products List under Family Models for full listing details. Not all models are approved for all application categories.

† Refer to page 2 of the D-0716 authorized distributor price book for Crouse-Hinds standard Terms and Conditions.



Energy consumption comparison

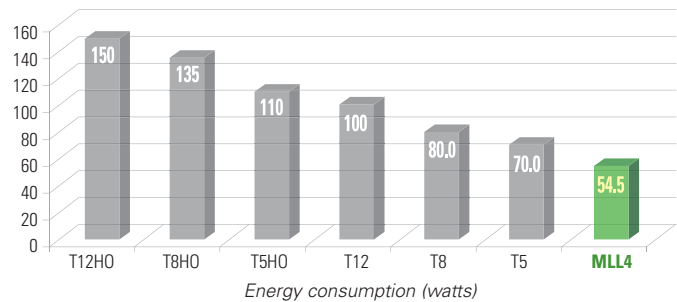
2 foot MLL linear LED vs. fluorescent



| Model | Typical lumens | Wattage | Lumens per watt | Equivalent HID luminaire | Typical energy savings / lifetime |
|-------|----------------|---------|-----------------|--------------------------|-----------------------------------|
| MLL2 | 3,600 | 29 | 124 | 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

4 foot MLL linear LED vs. fluorescent



| Model | Typical lumens | Wattage | Lumens per watt | Equivalent HID luminaire | Typical energy savings / lifetime |
|-------|----------------|---------|-----------------|--------------------------|-----------------------------------|
| MLL4 | 7,100 | 54.5 | 130 | 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

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
- UL924 for Emergency Lighting

CSA standard:

- C22.2 No. 137

Additional certifications:

- ABS design assessed

Materials:

Housing:

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

Lens:

- Glass or polycarbonate
- Diffused glass or polycarbonate

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



Electrical ratings:

| | MLL2 | MLL4 |
|---------------------|--------------------------------------|----------|
| Lumen output | 3,600 | 7,100 |
| Frequency | 50/60 Hz | 50/60 Hz |
| Voltage | 100-277 VAC/108-250 VDC; 347-480 VAC | |

| Model | Voltage | Current (A) | Wattage (W) | Power factor | THD |
|------------|---------|-------------|-------------|--------------|------|
| MLL2/UNV1 | 100 | 0.28 | 28.2 | 0.90 | <20% |
| MLL2/UNV1 | 277 | 0.12 | 29.4 | 0.90 | <20% |
| MLL2/UNV34 | 347 | 0.09 | 29.2 | 0.90 | <20% |
| MLL2/UNV34 | 480 | 0.07 | 30.1 | 0.90 | <20% |
| MLL4/UNV1 | 100 | 0.55 | 55.0 | 0.95 | <20% |
| MLL4/UNV1 | 277 | 0.20 | 54.5 | 0.95 | <20% |
| MLL4/UNV34 | 347 | 0.16 | 55.8 | 0.95 | <20% |
| MLL4/UNV34 | 480 | 0.12 | 56.2 | 0.95 | <20% |

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 |

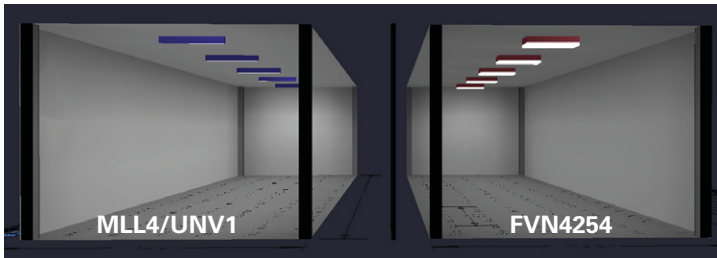
Weights:

| Luminaire | lbs. | kg. |
|-----------|------|------|
| MLL2 | 12.5 | 5.7 |
| MLL4 | 22.5 | 10.2 |



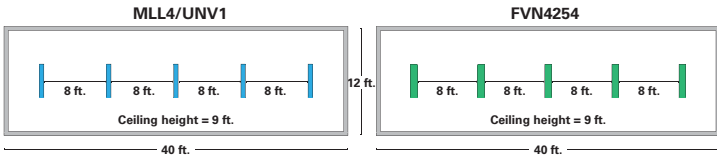
Photometrics: control room/pump shed

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

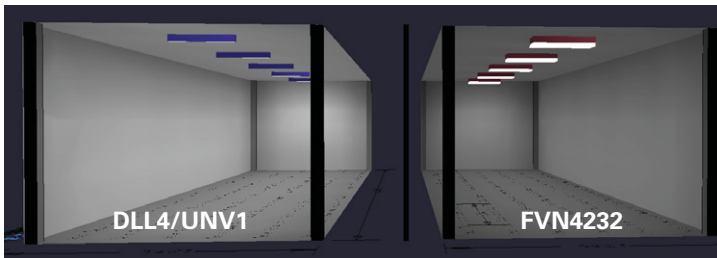


| Illuminance (Fc) | MLL4/UNV1 | FVN4254 |
|------------------------|-----------|---------|
| Average | 44.87 | 33.78 |
| Maximum | 55.40 | 42.50 |
| Minimum | 25.20 | 18.90 |
| Average/minimum | 1.78 | 1.79 |
| Maximum/minimum | 2.20 | 2.25 |

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

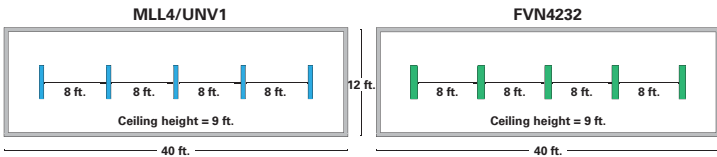


4 foot MLL LED with 120° optics vs. 4 foot 2 lamp T8 FVN

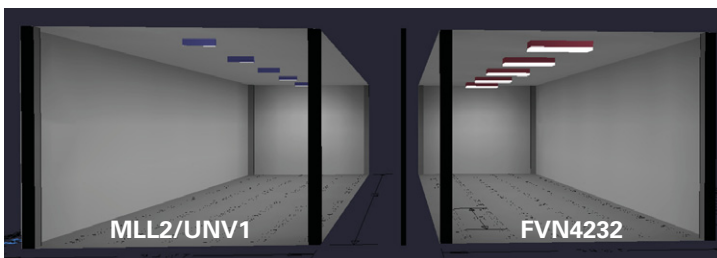


| Illuminance (Fc) | MLL4/UNV1 | FVN4232 |
|------------------------|-----------|---------|
| Average | 44.89 | 22.46 |
| Maximum | 55.50 | 28.30 |
| Minimum | 25.20 | 12.40 |
| Average/minimum | 1.78 | 1.81 |
| Maximum/minimum | 2.20 | 2.28 |

Twice the average illumination of 2 lamp T8 FVN

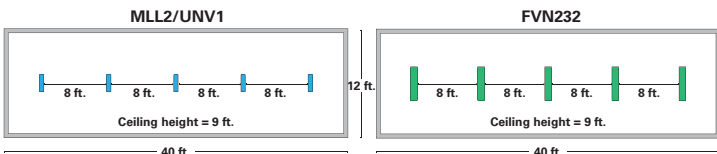


2 foot MLL LED with 120° optics vs. 4 foot 2 lamp T8 FVN



| Illuminance (Fc) | MLL2/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

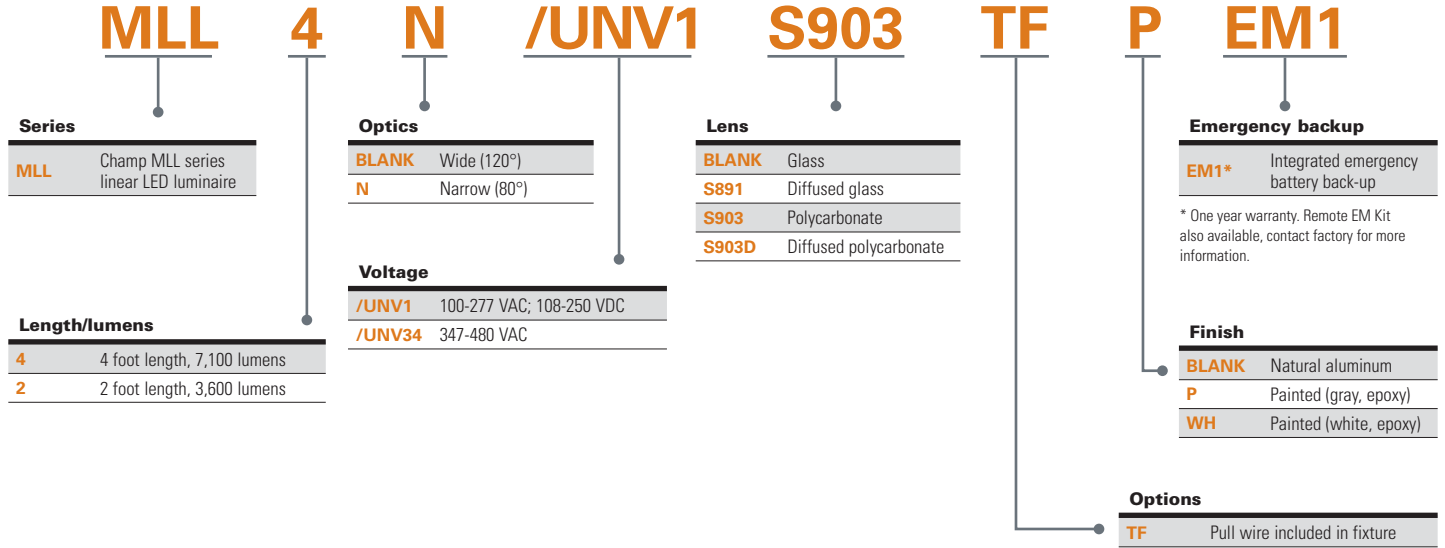


Ordering information

Part number example

MLL4N/UNV1 S903 TF P EM

MLL series linear LED, cool white, 4 foot, 3/4" hubs, 80° narrow light pattern, 100-277 VAC driver, polycarbonate lens, through feed hubs, painted, battery back-up



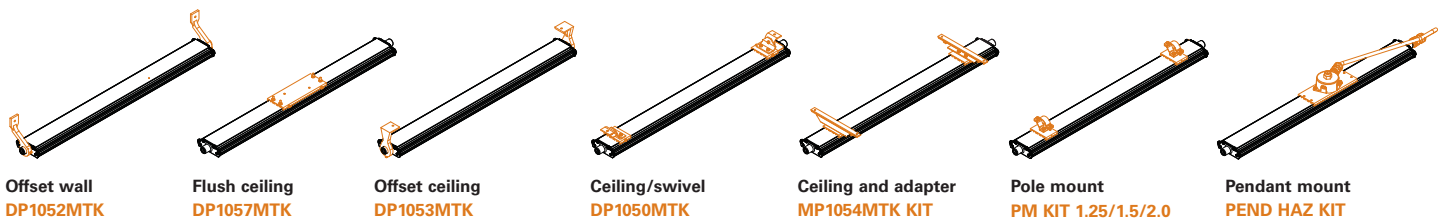
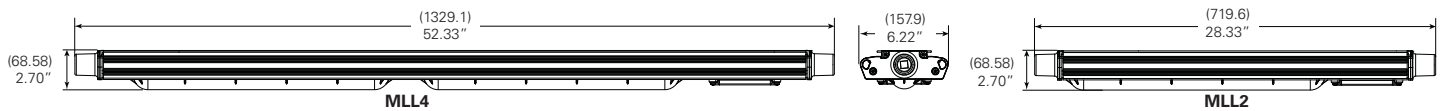
Accessories (ordered separately)

| | |
|----------------------|---|
| DP1057MTK | Flush/back mount back plate (<i>compatible with DuraPro</i>) |
| DP1050MTK | Ceiling/swivel mount (<i>compatible with DuraPro</i>) |
| DP1053MTK | Ceiling/wall mount offset (<i>compatible with DuraPro</i>) |
| MP1054MTK KIT | Ceiling mount bracket and adapter kit (<i>compatible with MagnaPro</i>) |
| DP1052MTK | Offset wall mount (<i>compatible with DuraPro</i>) |
| PM KIT 1.25 | Pole mount kit, 1.25" conduit |
| PM KIT 1.5 | Pole mount kit, 1.50" conduit |
| PM KIT 2.0 | Pole mount kit, 2.00" conduit |

Accessories (ordered separately)

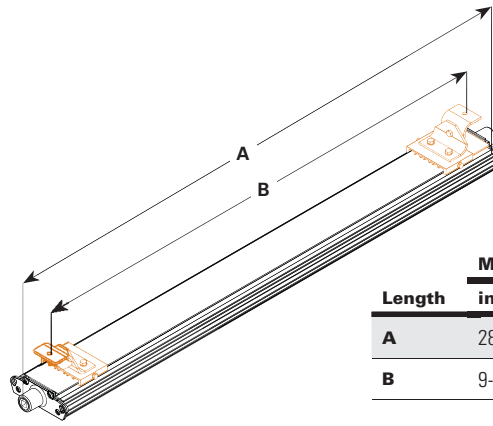
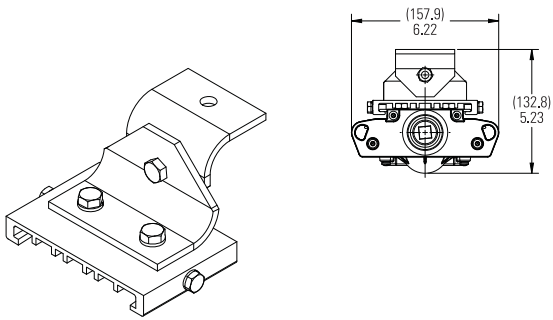
| | |
|--------------------------------|---|
| PEND HAZ KIT | Pendant mount kit |
| SS KIT | Safety chain kit |
| VMVL/UNV1 80W 1A KIT | 1 amp driver replacement kit 100-277 VAC for 4 ft. linear |
| VMVL/UNV34 80W 1A KIT | 1 amp driver replacement kit 347-480 VAC for 4 ft. linear |
| VMVL/UNV1 80W 0.5A KIT | 0.5 amp driver replacement kit 100-277 VAC for 2 ft. linear |
| VMVL/UNV34 80W 0.5A KIT | 0.5 amp driver replacement kit 347-480 VAC for 2 ft. linear |

Dimensions & mounting options:



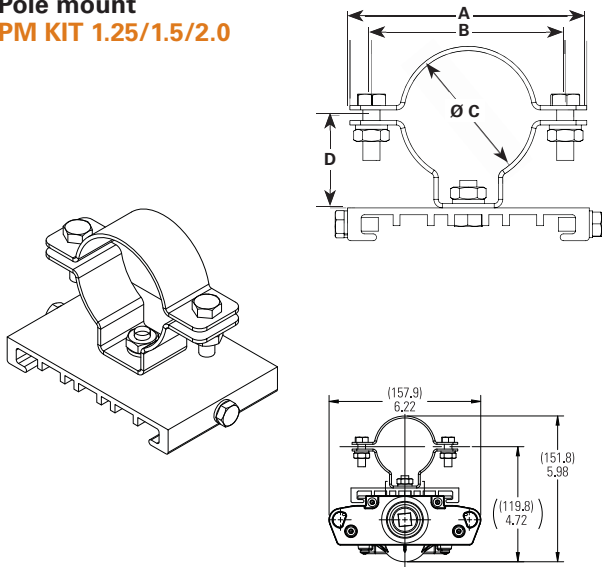
Mounting options

Ceiling/swivel mount DP1050MTK

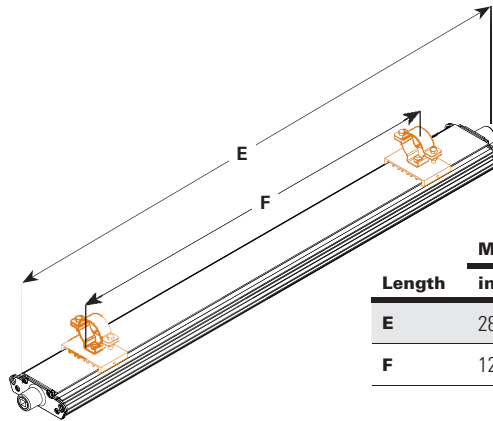


| Length | MLL2 | | MLL4 | |
|--------|------|---------|------|----------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 9-27 | 222-681 | 9-51 | 222-1289 |

Pole mount PM KIT 1.25/1.5/2.0

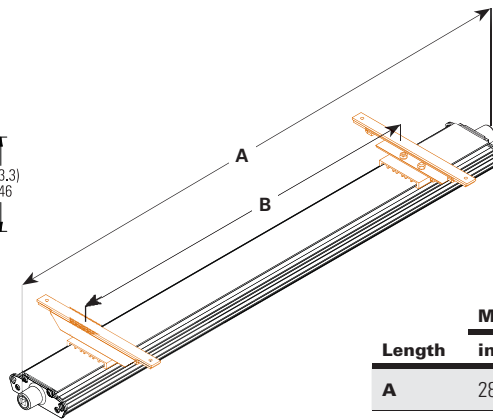
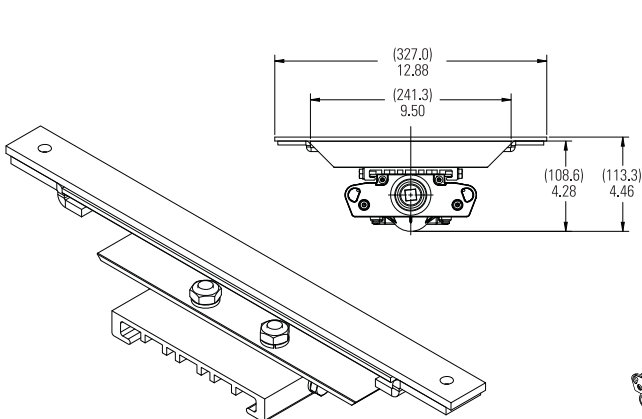


| Configuration | ALL MEASUREMENTS IN INCHES | | | |
|---------------|----------------------------|-------|-------|-------|
| | A | B | C | D |
| PM KIT 1.25 | 4.331 | 3.543 | 1.680 | 1.693 |
| PM KIT 1.5 | 3.740 | 2.953 | 2.000 | 1.535 |
| PM KIT 2.0 | 3.386 | 2.598 | 2.360 | 1.378 |



| Length | MLL2 | | MLL4 | |
|--------|-------|---------|-------|----------|
| | in. | mm. | in. | mm. |
| E | 28.3 | 720 | 52.3 | 1329 |
| F | 12-21 | 305-533 | 24-45 | 610-1143 |

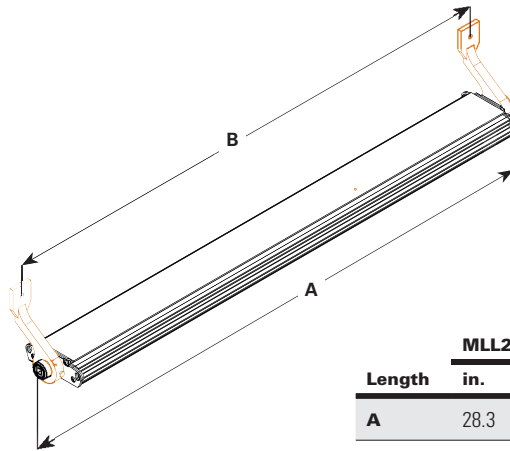
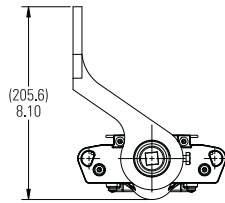
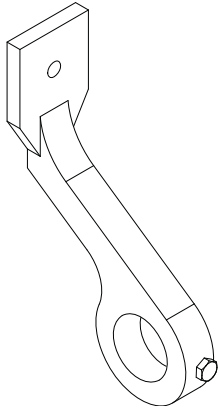
MagnaPro mount MP1054MTK KIT



| Length | MLL2 | | MLL4 | |
|--------|-------|---------|-------|----------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 12-22 | 305-559 | 24-46 | 610-1168 |

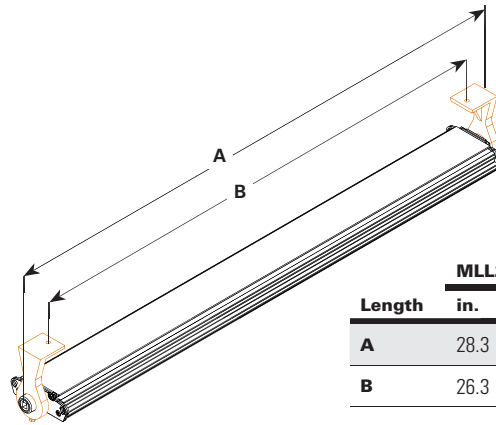
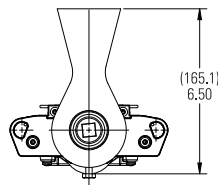
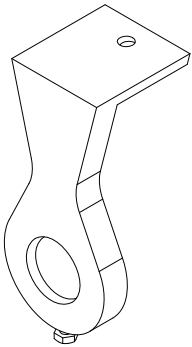
Mounting options

Offset wall DP1052MTK



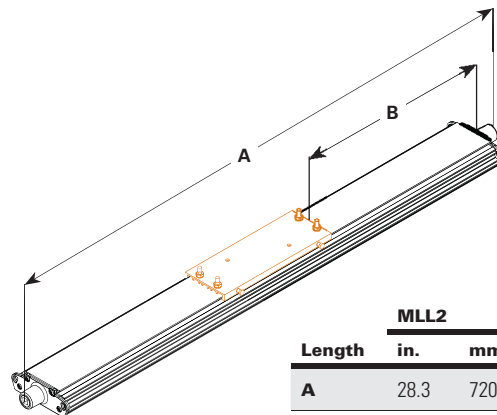
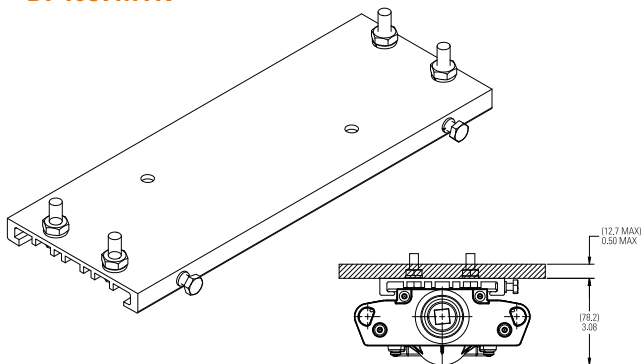
| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 26.3 | 669 | 50.3 | 1278 |

Offset ceiling/wall mount DP1053MTK



| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 26.3 | 584 | 47.0 | 1194 |

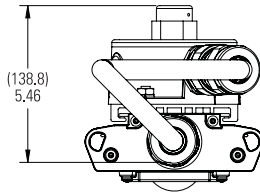
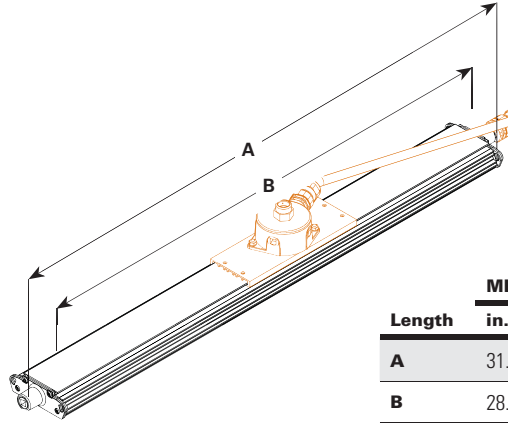
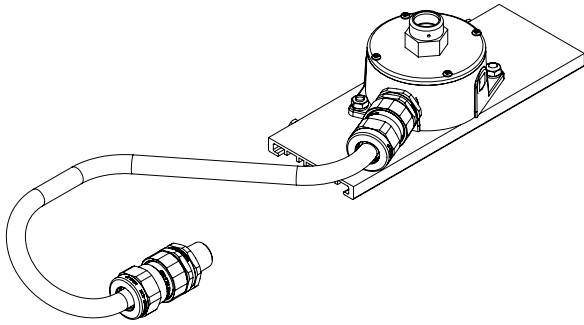
Flush ceiling DP1057MTK



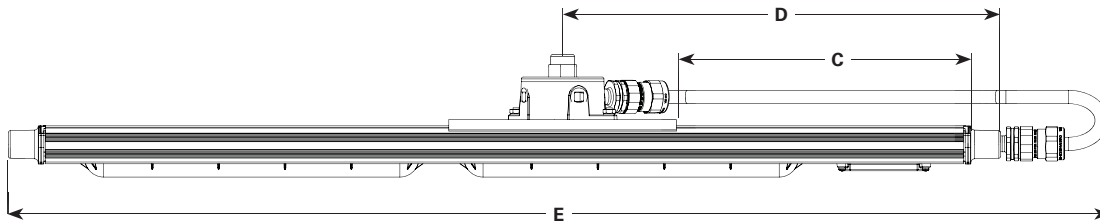
| Length | MLL2 | | MLL4 | |
|----------|------|-------|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 6.2 | 157.5 | 18.2 | 462 |

Mounting options

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



| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 31.7 | 805 | 55.8 | 1418 |
| B | 28.3 | 720 | 52.3 | 1329 |
| C | 4.2 | 108 | 16.0 | 406 |
| D | 12.2 | 310 | 24.0 | 610 |
| E | 34.9 | 886 | 58.9 | 1495 |



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 |
|----------------------|----------------------------|----------------------------|
| MLL4/UNV1 EM1 | 1,400 lumens (100-277V) | 6,720 lumens (100-277V) |

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
- 6,720 lumen output for normal operation
- 1,400 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

UL Standards

- UL844 Hazardous (Classified)
- UL1598 Luminaires, UL1598A Marine
- UL924 Emergency Lighting

CSA Standard

- CSA C22.2 Nos. 250, 137, 141

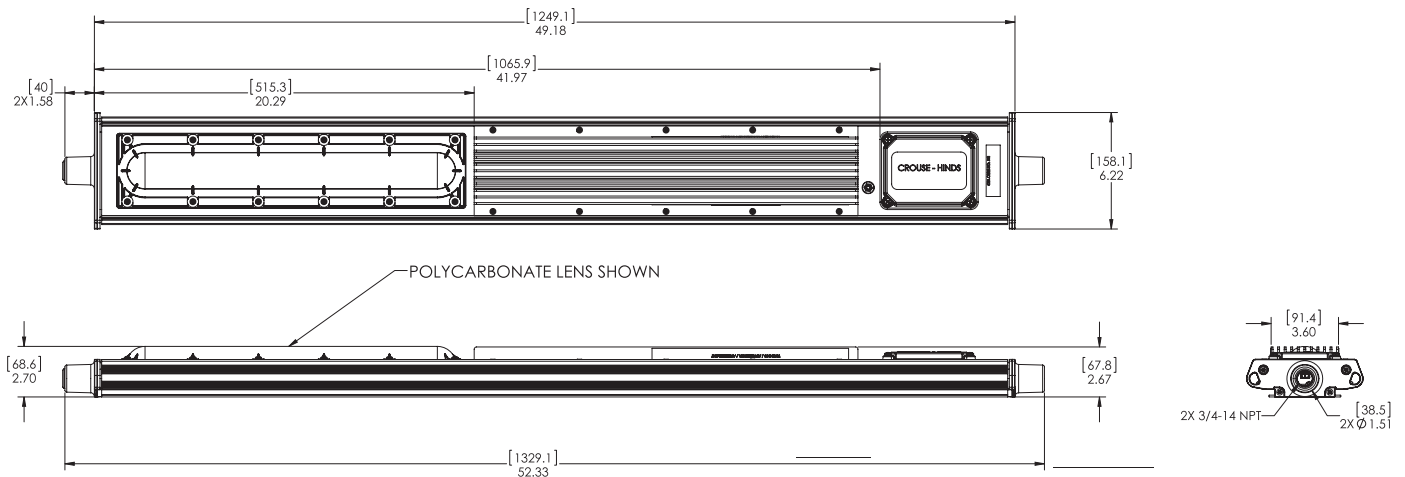
Electrical ratings:

| | | |
|-------------------------------|---------|---------|
| Voltage | 120 | 277 |
| Amperage @ 120VAC | .48 | .212 |
| Wattage @ 120VAC | 57.8 | 57.7 |
| Lumen output | 6,720 | 6,720 |
| Frequency | 50/60Hz | 50/60Hz |
| Power factor @ 100 VAC | .997 | .980 |
| THD | 6.58 | 11.70 |

Temperature codes:

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

Dimensions:



**U.S. (global headquarters):
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Syracuse, NY 13208

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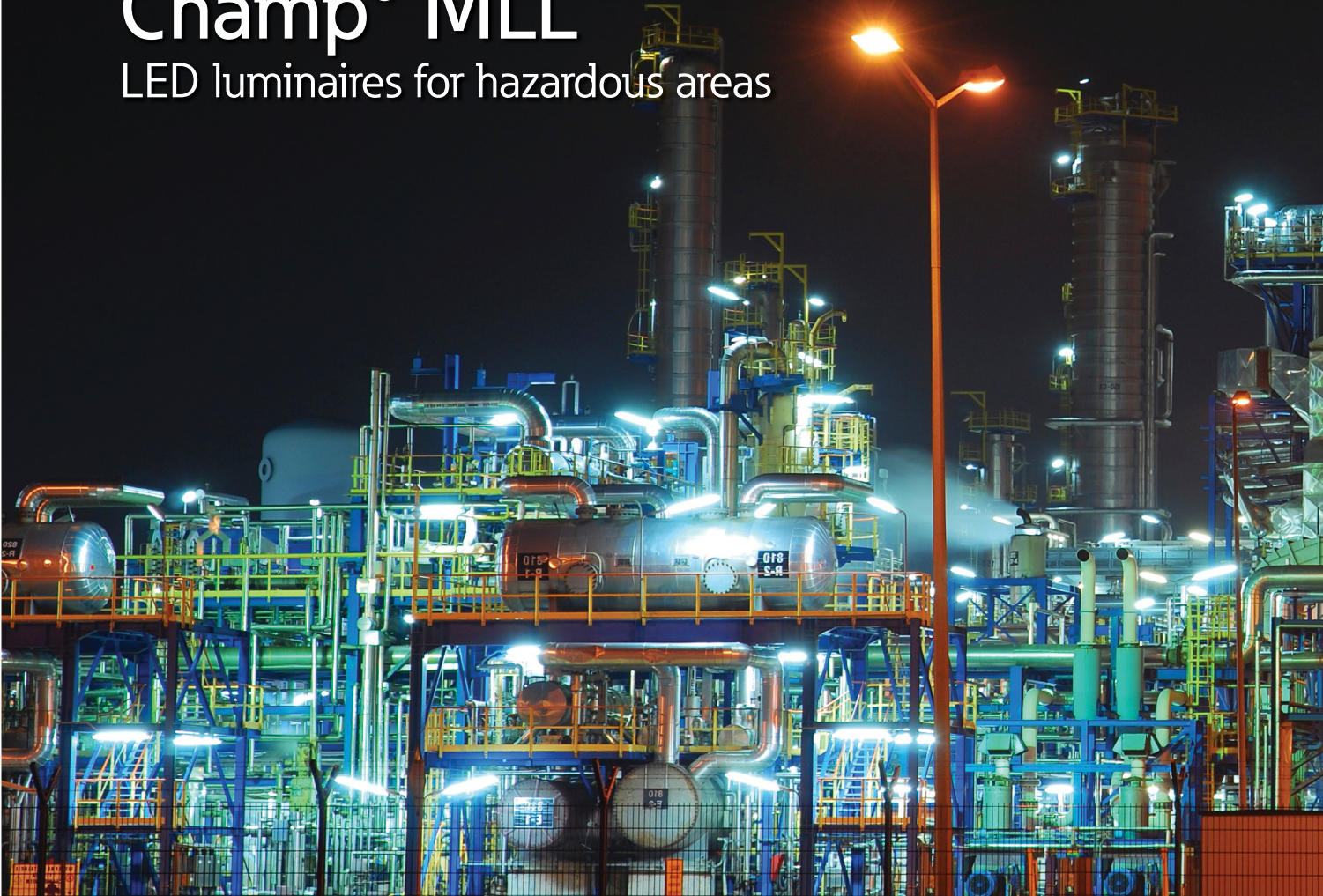
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LED lighting for hazardous areas
Champ® MLL LED Luminaires

CROUSE-HINDS
SERIES

Champ® MLL

LED luminaires for hazardous areas



EATON

Powering Business Worldwide



Champ® MLL Series LEDs

Safe. Reliable. Efficient.

Featuring the industry's broadest range of LED luminaires for harsh and hazardous environments, Eaton's Crouse-Hinds can deliver a lighting solution that performs reliably in even the worst operating conditions. All the while reducing 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

Why Champ® MLL LED?

Designed for harsh and hazardous. Champ MLL linear LED luminaires are engineered to handle demanding conditions. The MLL 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

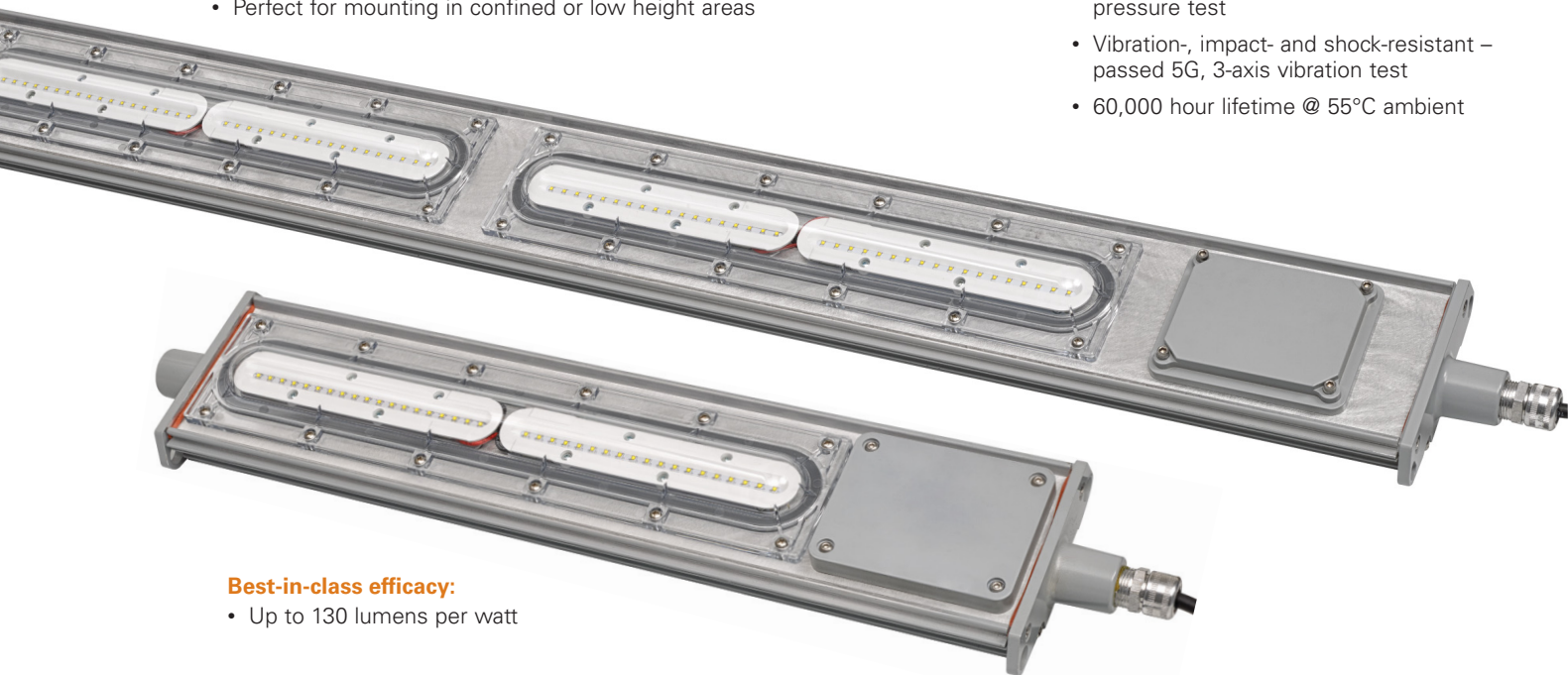


Slim profile:

- 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



Best-in-class efficacy:

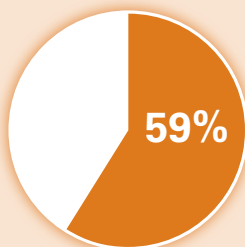
- Up to 130 lumens per watt

LED vs. fluorescent savings at a glance

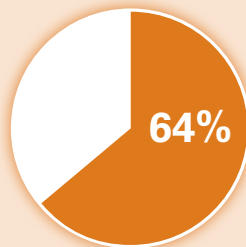
Why are so many facilities making the switch from fluorescent to LED?

The numbers say it all.

MLL4 vs. 2-lamp T5HO



59% REDUCTION IN ENERGY COSTS



64% LOWER 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 2 hours.

Champ® MLL Series LED Luminaires

The Champ MLL 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 MLL 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:

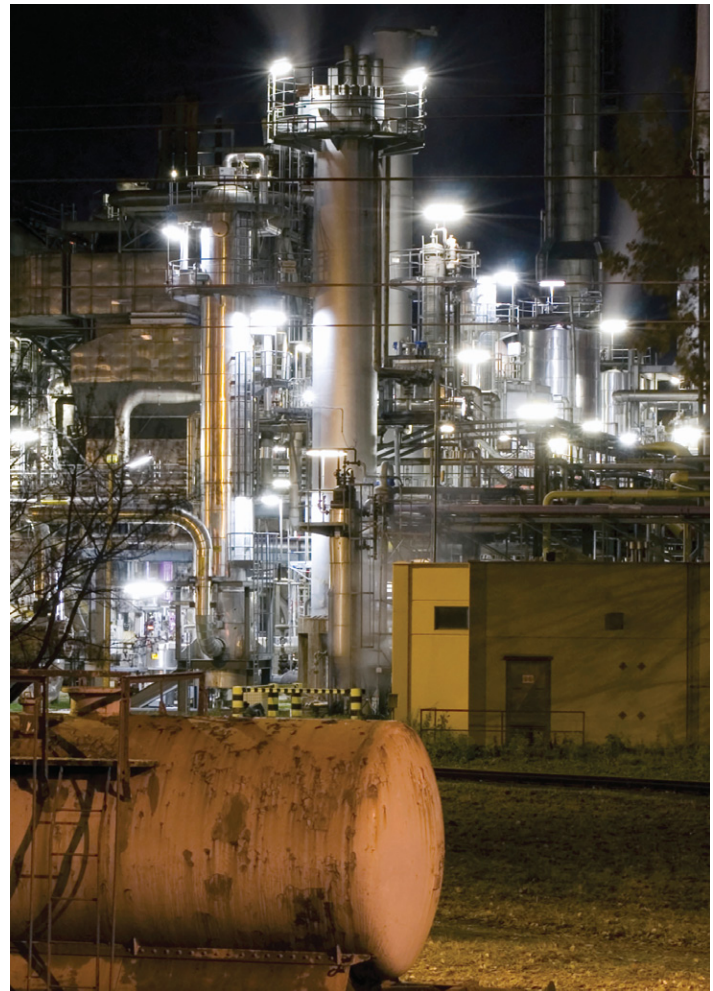
- Industry-leading efficacy: up to 130 LPW
- -40°C to +65°C ambient operating temperature (standard model)
- Low profile (<3" height)
- Versatile ceiling/swivel, wall, flush, pole and pendant mounting options
- Wide and narrow optics for uniform illumination
- Four points of secondary retention
- 2,000 psi high pressure hose rated
- High vibration resistance
- Emergency battery back-up (90 minutes) and surge protection options (up to 10kV)‡
- DesignLights Consortium® Qualified (some models are not DLC qualified)*
- 5 year fixture warranty†



‡ One year warranty

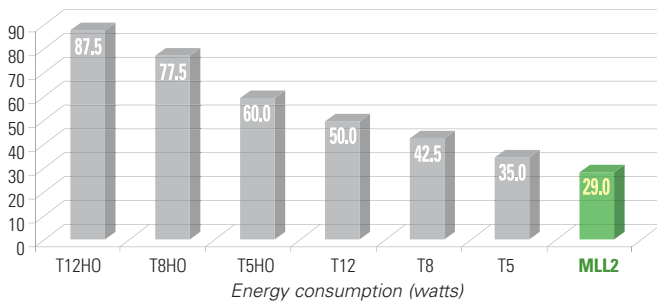
* Refer to www.designlights.org Qualified Products List under Family Models for full listing details. Not all models are approved for all application categories.

† Refer to page 2 of the D-0716 authorized distributor price book for Crouse-Hinds standard Terms and Conditions.



Energy consumption comparison

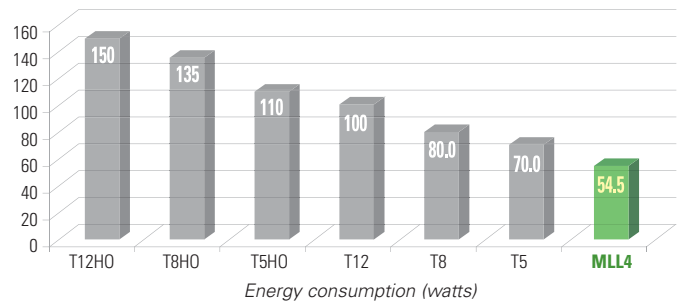
2 foot MLL linear LED vs. fluorescent



| Model | Typical lumens | Wattage | Lumens per watt | Equivalent HID luminaire | Typical energy savings / lifetime |
|-------|----------------|---------|-----------------|--------------------------|-----------------------------------|
| MLL2 | 3,600 | 29 | 124 | 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

4 foot MLL linear LED vs. fluorescent



| Model | Typical lumens | Wattage | Lumens per watt | Equivalent HID luminaire | Typical energy savings / lifetime |
|-------|----------------|---------|-----------------|--------------------------|-----------------------------------|
| MLL4 | 7,100 | 54.5 | 130 | 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

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
- UL924 for Emergency Lighting

CSA standard:

- C22.2 No. 137

Additional certifications:

- ABS design assessed

Materials:

Housing:

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

Lens:

- Glass or polycarbonate
- Diffused glass or polycarbonate

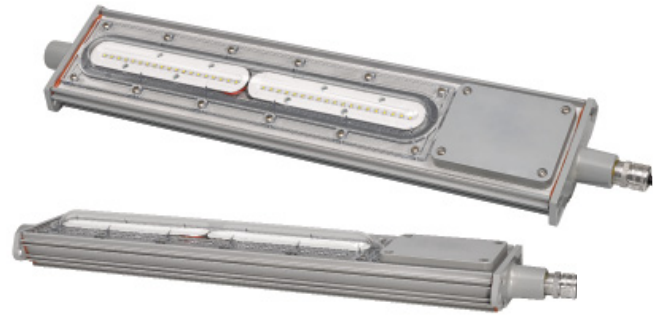
Mounting:

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



Electrical ratings:

| | MLL2 | MLL4 |
|---------------------|--------------------------------------|----------|
| Lumen output | 3,600 | 7,100 |
| Frequency | 50/60 Hz | 50/60 Hz |
| Voltage | 100-277 VAC/108-250 VDC; 347-480 VAC | |

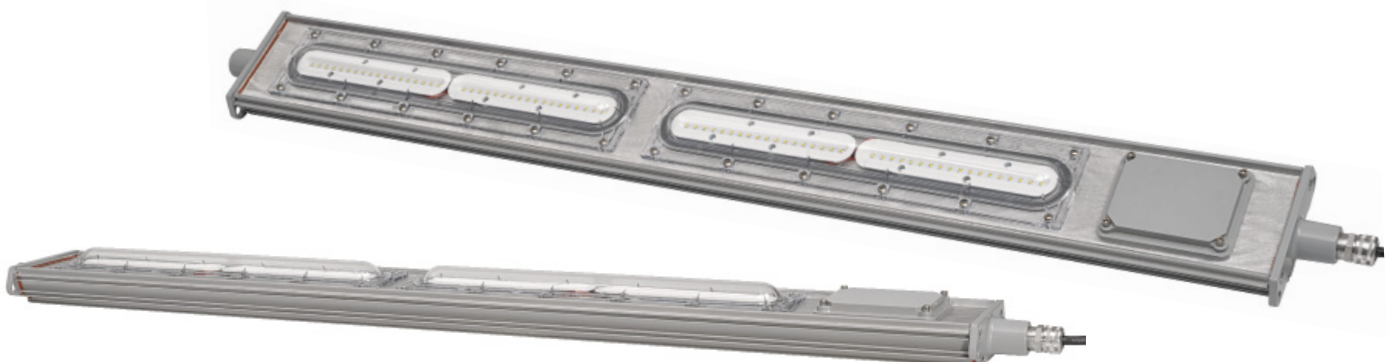
| Model | Voltage | Current (A) | Wattage (W) | Power factor | THD |
|-------------------|---------|-------------|-------------|--------------|------|
| MLL2/UNV1 | 100 | 0.28 | 28.2 | 0.90 | <20% |
| MLL2/UNV1 | 277 | 0.12 | 29.4 | 0.90 | <20% |
| MLL2/UNV34 | 347 | 0.09 | 29.2 | 0.90 | <20% |
| MLL2/UNV34 | 480 | 0.07 | 30.1 | 0.90 | <20% |
| MLL4/UNV1 | 100 | 0.55 | 55.0 | 0.95 | <20% |
| MLL4/UNV1 | 277 | 0.20 | 54.5 | 0.95 | <20% |
| MLL4/UNV34 | 347 | 0.16 | 55.8 | 0.95 | <20% |
| MLL4/UNV34 | 480 | 0.12 | 56.2 | 0.95 | <20% |

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 |

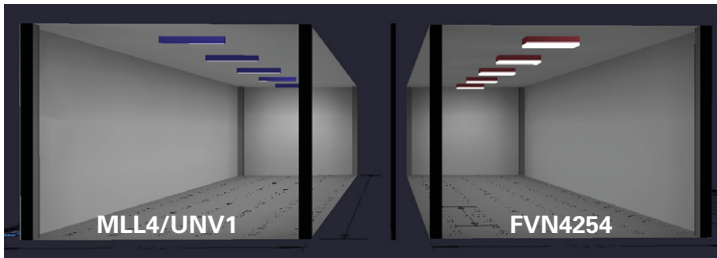
Weights:

| Luminaire | lbs. | kg. |
|-------------|------|------|
| MLL2 | 12.5 | 5.7 |
| MLL4 | 22.5 | 10.2 |



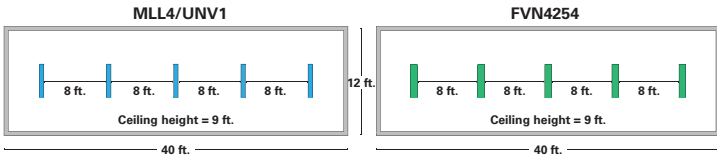
Photometrics: control room/pump shed

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

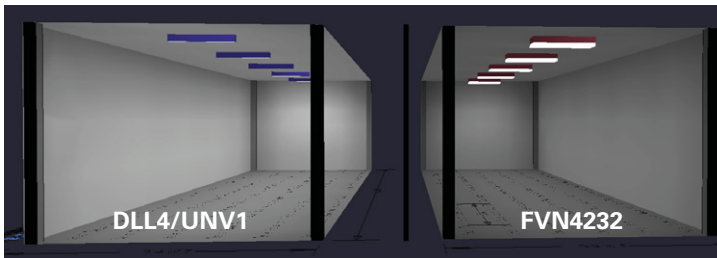


| Illuminance (Fc) | MLL4/UNV1 | FVN4254 |
|------------------------|-----------|---------|
| Average | 44.87 | 33.78 |
| Maximum | 55.40 | 42.50 |
| Minimum | 25.20 | 18.90 |
| Average/minimum | 1.78 | 1.79 |
| Maximum/minimum | 2.20 | 2.25 |

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

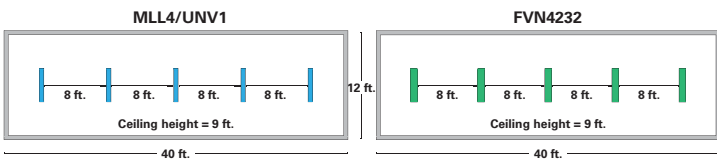


4 foot MLL LED with 120° optics vs. 4 foot 2 lamp T8 FVN

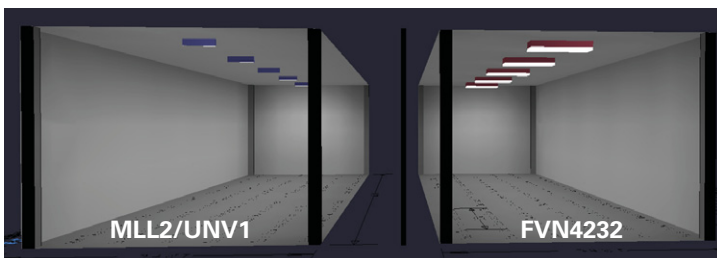


| Illuminance (Fc) | MLL4/UNV1 | FVN4232 |
|------------------------|-----------|---------|
| Average | 44.89 | 22.46 |
| Maximum | 55.50 | 28.30 |
| Minimum | 25.20 | 12.40 |
| Average/minimum | 1.78 | 1.81 |
| Maximum/minimum | 2.20 | 2.28 |

Twice the average illumination of 2 lamp T8 FVN

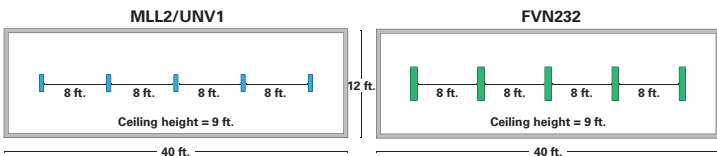


2 foot MLL LED with 120° optics vs. 4 foot 2 lamp T8 FVN



| Illuminance (Fc) | MLL2/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

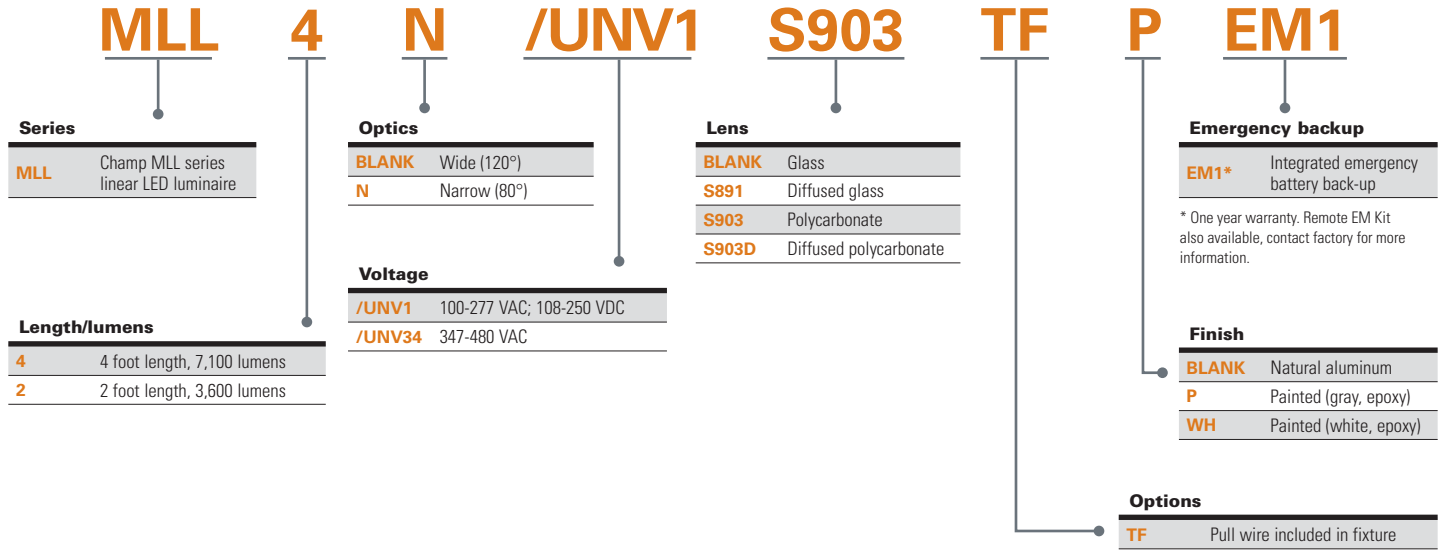


Ordering information

Part number example

MLL4N/UNV1 S903 TF P EM

MLL series linear LED, cool white, 4 foot, 3/4" hubs, 80° narrow light pattern, 100-277 VAC driver, polycarbonate lens, through feed hubs, painted, battery back-up



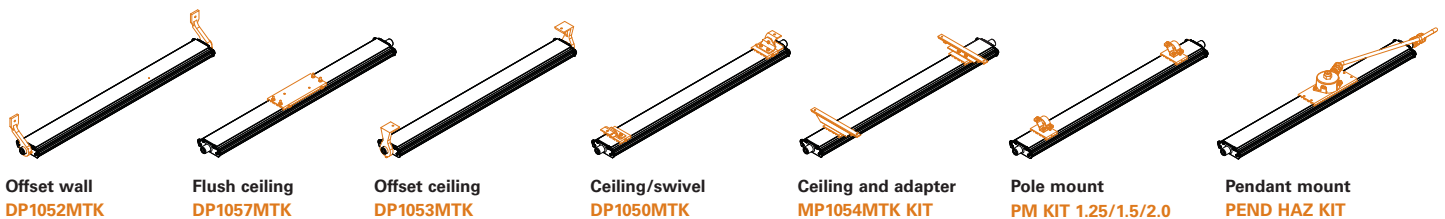
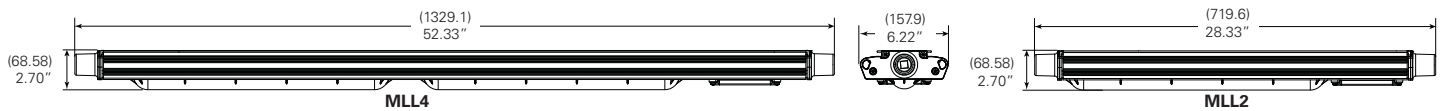
Accessories (ordered separately)

| | |
|----------------------|---|
| DP1057MTK | Flush/back mount back plate (<i>compatible with DuraPro</i>) |
| DP1050MTK | Ceiling/swivel mount (<i>compatible with DuraPro</i>) |
| DP1053MTK | Ceiling/wall mount offset (<i>compatible with DuraPro</i>) |
| MP1054MTK KIT | Ceiling mount bracket and adapter kit (<i>compatible with MagnaPro</i>) |
| DP1052MTK | Offset wall mount (<i>compatible with DuraPro</i>) |
| PM KIT 1.25 | Pole mount kit, 1.25" conduit |
| PM KIT 1.5 | Pole mount kit, 1.50" conduit |
| PM KIT 2.0 | Pole mount kit, 2.00" conduit |

Accessories (ordered separately)

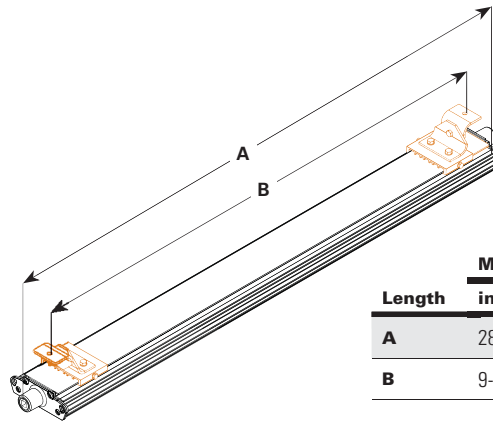
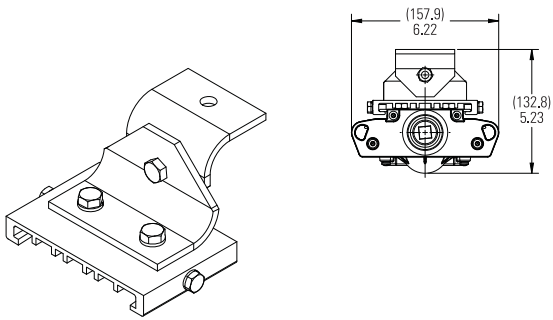
| | |
|--------------------------------|---|
| PEND HAZ KIT | Pendant mount kit |
| SS KIT | Safety chain kit |
| VMVL/UNV1 80W 1A KIT | 1 amp driver replacement kit 100-277 VAC for 4 ft. linear |
| VMVL/UNV34 80W 1A KIT | 1 amp driver replacement kit 347-480 VAC for 4 ft. linear |
| VMVL/UNV1 80W 0.5A KIT | 0.5 amp driver replacement kit 100-277 VAC for 2 ft. linear |
| VMVL/UNV34 80W 0.5A KIT | 0.5 amp driver replacement kit 347-480 VAC for 2 ft. linear |

Dimensions & mounting options:



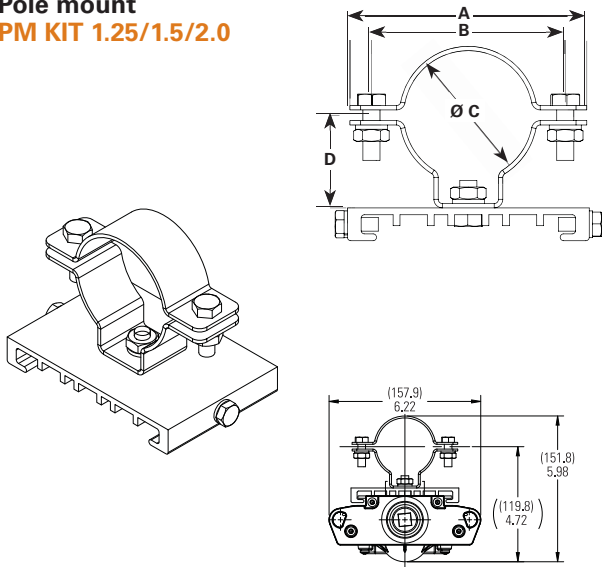
Mounting options

Ceiling/swivel mount DP1050MTK

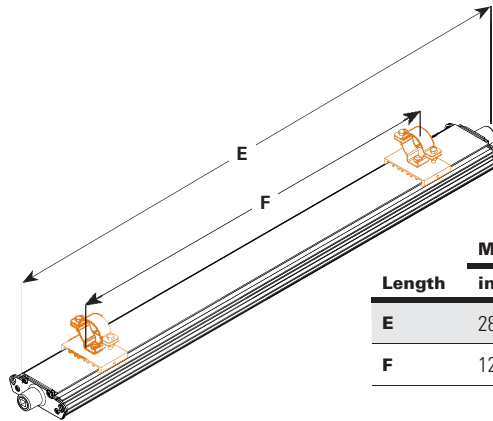


| Length | MLL2 | | MLL4 | |
|--------|------|---------|------|----------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 9-27 | 222-681 | 9-51 | 222-1289 |

Pole mount PM KIT 1.25/1.5/2.0

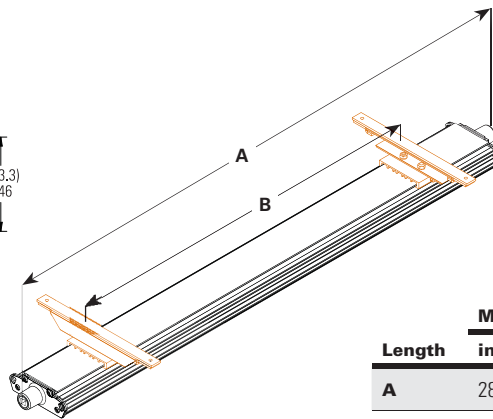
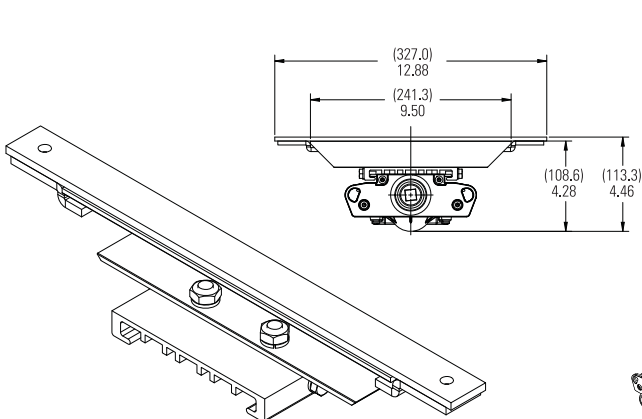


| Configuration | ALL MEASUREMENTS IN INCHES | | | |
|---------------|----------------------------|-------|-------|-------|
| | A | B | C | D |
| PM KIT 1.25 | 4.331 | 3.543 | 1.680 | 1.693 |
| PM KIT 1.5 | 3.740 | 2.953 | 2.000 | 1.535 |
| PM KIT 2.0 | 3.386 | 2.598 | 2.360 | 1.378 |



| Length | MLL2 | | MLL4 | |
|--------|-------|---------|-------|----------|
| | in. | mm. | in. | mm. |
| E | 28.3 | 720 | 52.3 | 1329 |
| F | 12-21 | 305-533 | 24-45 | 610-1143 |

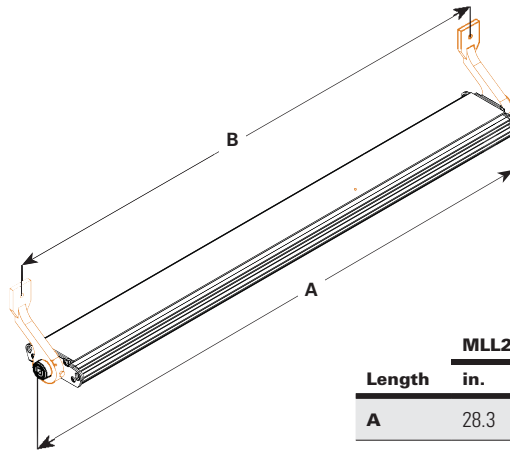
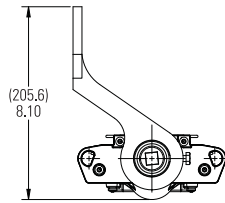
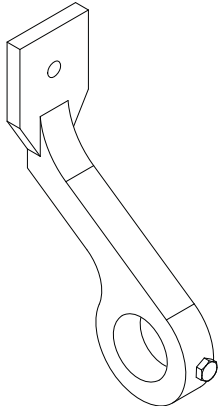
MagnaPro mount MP1054MTK KIT



| Length | MLL2 | | MLL4 | |
|--------|-------|---------|-------|----------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 12-22 | 305-559 | 24-46 | 610-1168 |

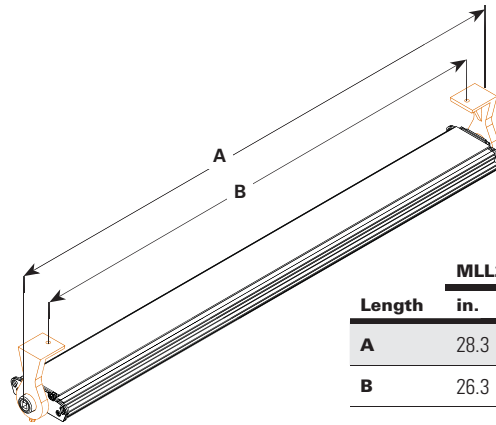
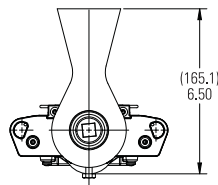
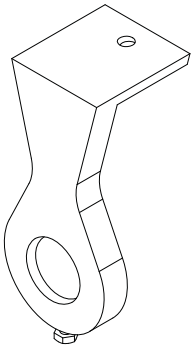
Mounting options

Offset wall DP1052MTK



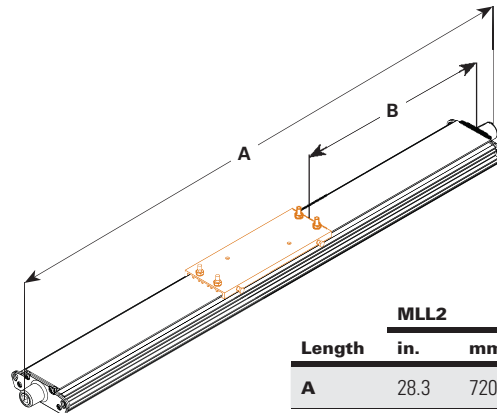
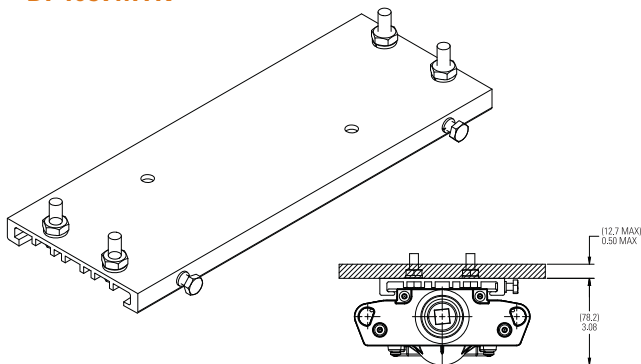
| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 26.3 | 669 | 50.3 | 1278 |

Offset ceiling/wall mount DP1053MTK



| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 26.3 | 584 | 47.0 | 1194 |

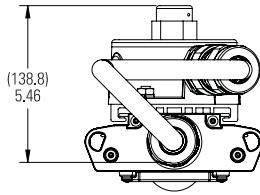
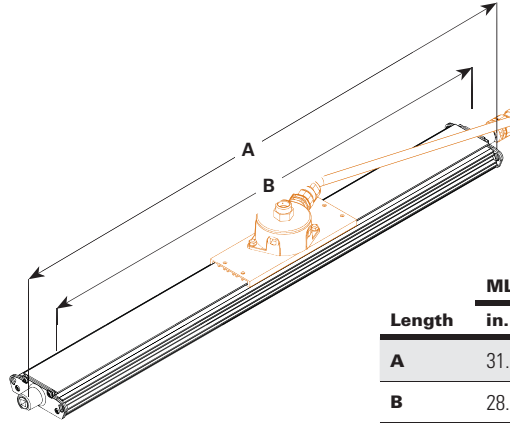
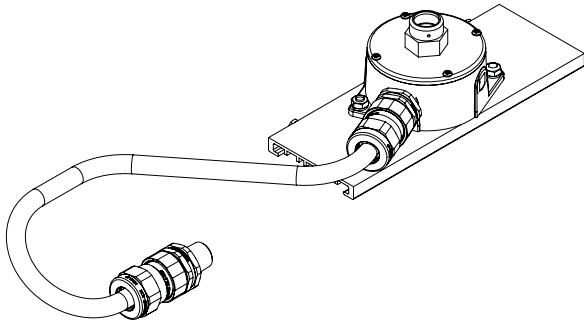
Flush ceiling DP1057MTK



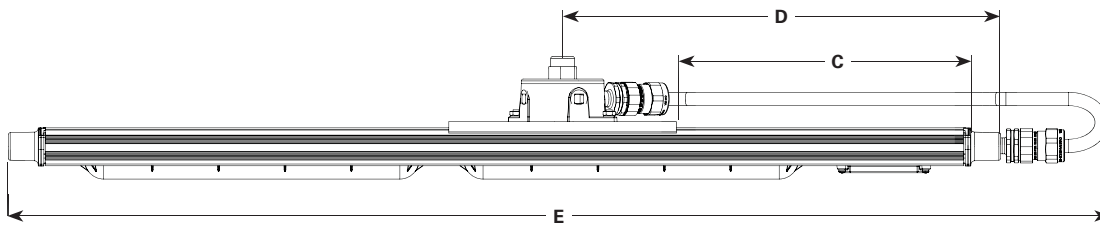
| Length | MLL2 | | MLL4 | |
|----------|------|-------|------|------|
| | in. | mm. | in. | mm. |
| A | 28.3 | 720 | 52.3 | 1329 |
| B | 6.2 | 157.5 | 18.2 | 462 |

Mounting options

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



| Length | MLL2 | | MLL4 | |
|----------|------|-----|------|------|
| | in. | mm. | in. | mm. |
| A | 31.7 | 805 | 55.8 | 1418 |
| B | 28.3 | 720 | 52.3 | 1329 |
| C | 4.2 | 108 | 16.0 | 406 |
| D | 12.2 | 310 | 24.0 | 610 |
| E | 34.9 | 886 | 58.9 | 1495 |



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 |
|---------------|----------------------------|----------------------------|
| MLL4/UNV1 EM1 | 1,400 lumens (100-277V) | 6,720 lumens (100-277V) |

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
- 6,720 lumen output for normal operation
- 1,400 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

UL Standards

- UL844 Hazardous (Classified)
- UL1598 Luminaires, UL1598A Marine
- UL924 Emergency Lighting

CSA Standard

- CSA C22.2 Nos. 250, 137, 141

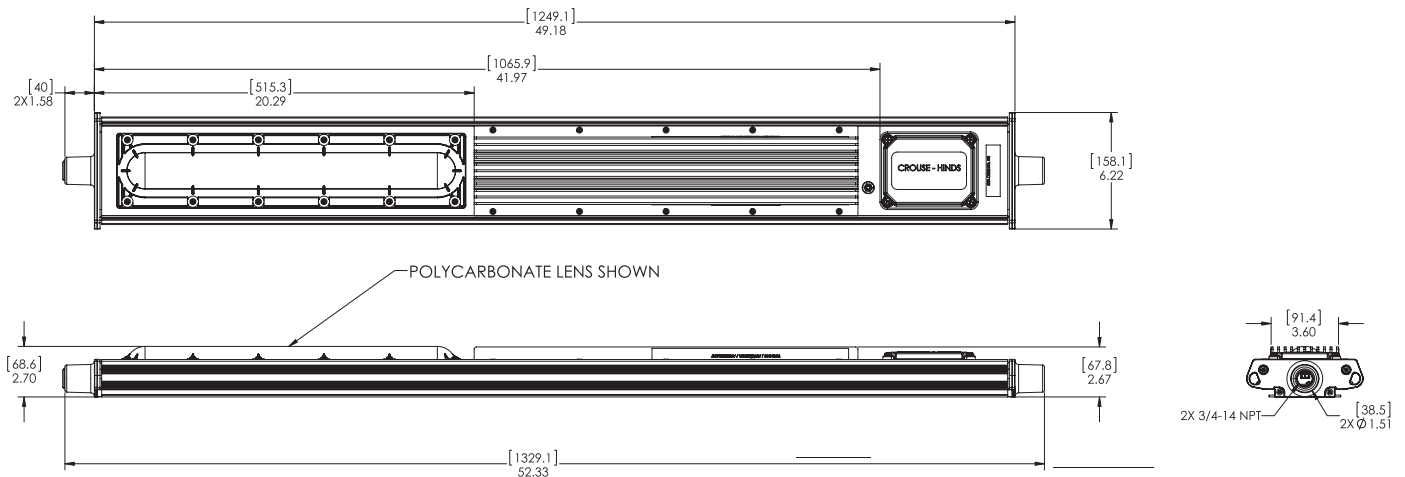
Electrical ratings:

| | | |
|-------------------------------|---------|---------|
| Voltage | 120 | 277 |
| Amperage @ 120VAC | .48 | .212 |
| Wattage @ 120VAC | 57.8 | 57.7 |
| Lumen output | 6,720 | 6,720 |
| Frequency | 50/60Hz | 50/60Hz |
| Power factor @ 100 VAC | .997 | .980 |
| THD | 6.58 | 11.70 |

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:



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

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Syracuse, NY 13208

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FAX: (315) 477-5179
FAX Orders Only:
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crousecustomerctr@eaton.com

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

Canada

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