

Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

2L

The Pauluhn™ DLLA linear LED is specifically designed to replace fluorescent T12, T8 and T5HO lighting on land-based and offshore drilling platforms. The rugged and durable design features the industry's most versatile and flexible mounting options. The Pauluhn DLLA is the ideal solution for high vibration, impact and hose down in drilling applications.

Model	Typical lumens	Watts	Lumens per watt	Equivalent HID luminaire	Typical energy savings / lifetime
DLLA2	4,000	30.3	132	T12HO	Up to 67%
				T8HO	Up to 63%
				T5HO	Up to 52%
				T12	Up to 42%
				T8	Up to 32%
				T5	Up to 17%
DLLA4	8,000	58.9	135	T12HO	Up to 64%
				T8HO	Up to 60%
				T5HO	Up to 50%
				T12	Up to 46%
				T8	Up to 32%
				T5	Up to 22%

Note: All luminaires in the comparison are 2-lamp, UNV1.

Applications:

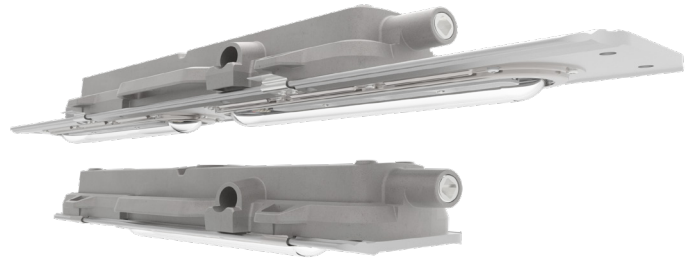
- Land-based and offshore rigs; areas include: derrick, mast, SCR house, top drive, operator's house, power and pump stations

Features:

- High efficacy: up to 134 LPW (DLLA2 with UNV1 driver)
- Dimmable driver, 0-10V
- Ambient operating temperature: -40°C to +65°C (standard model); 0°C to +40°C (emergency battery back-up model)
- Low profile (~4" 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
- Integral emergency battery back-up: 90 minute run-time and ≥1,000 lumens (all models)
- Surge protection (standard): 4kV line to line, 6kV line to earth
- Surge protection (with SRG1 or SRG3 suffix): >10kV line to line, >10kV line to earth
- 5 year fixture warranty

Standard materials:

- Housing – copper-free aluminum; Corro-free epoxy powder coat (optional)
- Lens – glass; polycarbonate, diffused glass, diffused polycarbonate (optional)



Certifications and compliances:

NEC/CEC:

- Class I, Division 2, Groups A, B, C, D
- Class I, Zone 2
- Class II, Division 2, Groups F, G
- Class III
- Type 4X, IP66/IP67
- Marine and wet locations

UL standards:

- UL844 – Electrical Fixture Hangers for Hazardous Locations
- UL924 – Emergency Lighting Equipment (emergency battery back-up model)
- UL1598 – Luminaire
- UL1598A – Luminaire for Installation on Marine Vessels
- UL8750 – Standard for Light Emitting Diode (LED) Equipment for use in Lighting Products

CSA standard:

- C22.2 Nos. 137, 141, 250

Mounting:

Versatile mounting options:

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

Photometrics:

- Refer to www.eaton.com (under the Resources tab of each product family) for specific photometric IES files

Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

2L

Electrical ratings:

UNV1	Input power (watts)	Input amps at 120-277 VAC
DLLA2	30.3	0.25
DLLA4	58.9	0.49

UNV1	
Voltage range, VAC	120-277V at 50/60 Hz
Voltage range, VDC	127/250V

UNV1	Power factor	THD
DLLA2	>0.92	<6.5%
DLLA4	>0.94	<6.2%

UNV34	Input power (watts)	Input amps at 347-480 VAC
DLLA2	31.1	0.09
DLLA4	54.6	0.16

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

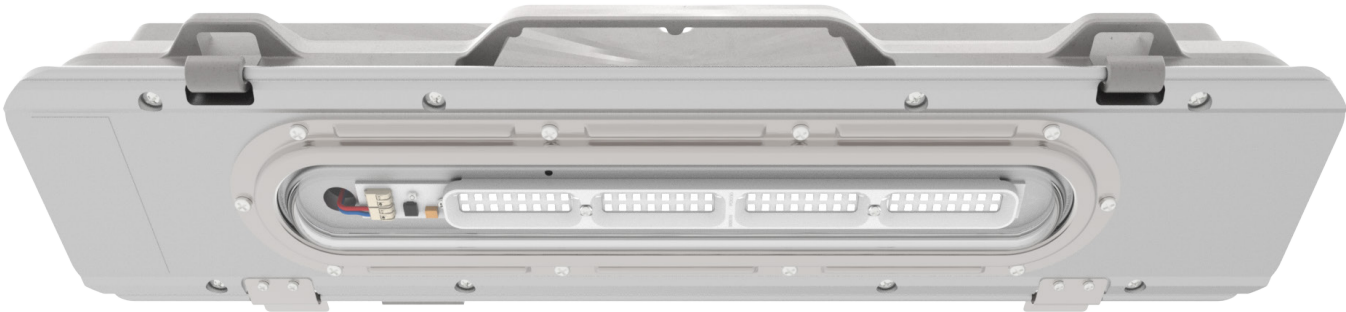
UNV34	Power factor	THD
DLLA2	>0.95	<18%
DLLA4	>0.98	<10%

Temperature performance data:

Ambient temp. °C	Min. temp. supply wire °C	Class I, Division 2	Class II, Division 2	Simultaneous rating
				Class I, Division 2; Class II, Division 2
40	75	T6	T6	T6
55	75	T5	T5	T5
65	90	T4A	T4A	T4A

Weights:

Model	Lbs.	Kg.
DLLA2	15.1	6.8
DLLA4	19.5	8.9



Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

2L

Design features:

High efficacy:

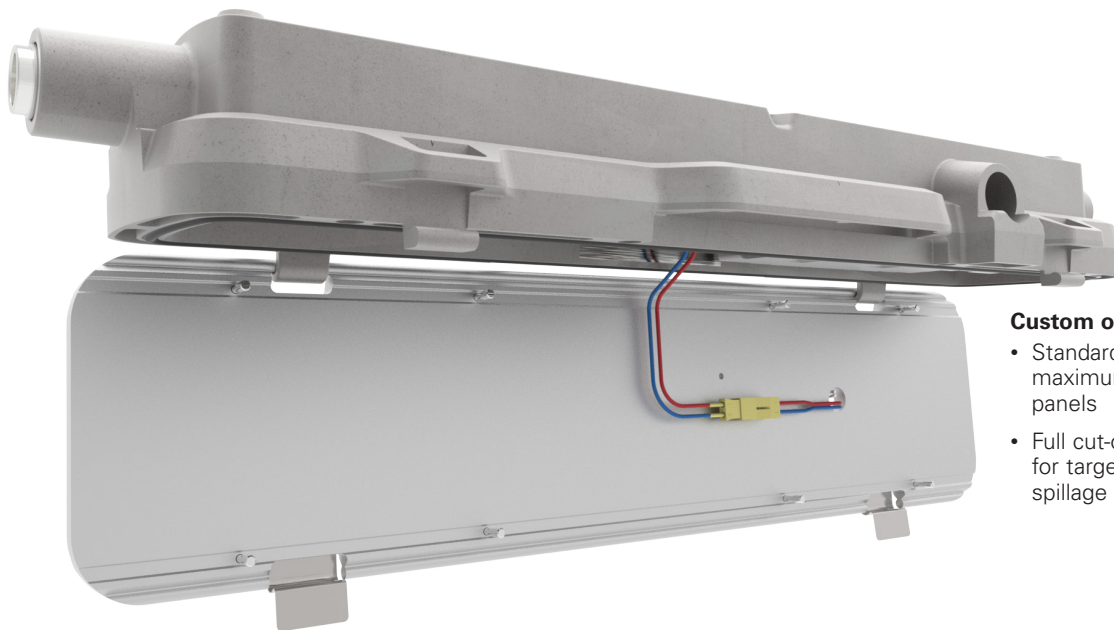
- Up to 134 lumens per watt (DLLA2 with UNV1 driver)

Quick & easy installation:

- Easy access to drivers and wiring
- No custom brackets or hardware needed

Comprehensive certification:

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



Custom optics:

- Standard wide beam spread for maximum illumination on wall panels
- Full cut-off beam spread option for targeted illumination; avoids spillage and light loss

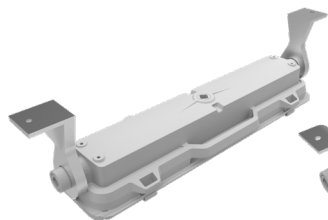
Slim profile:

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

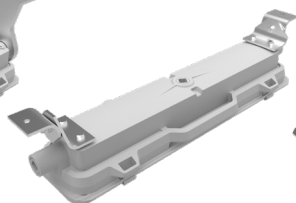
Built to last:

- 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 at 55°C ambient

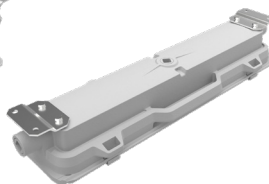
Versatile mounting options:



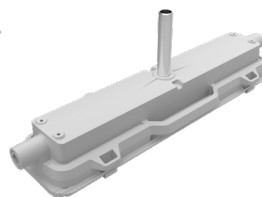
Offset ceiling/wall



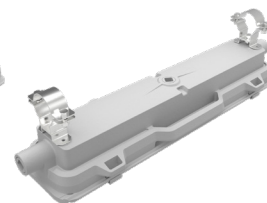
Offset ceiling/swivel



Flush mount (default)



Pendant
(integral to fixture and
available on all models
regardless of mounting
option chosen)



Pole mount

Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

Ordering information:

Part number example

DLLAW4NCS-UNV1-S903-1R-SRG1-EM1-P-M2

DLLA	W	4	N	CS	-UNV1	-S903	-1R	-SRG1	-EM1	-P	-M2
Color temperature		Voltage		Entries		Emergency battery back-up		Finish			
BLANK Cool white, 5000K, 80 CRI		UNV1 120-277 VAC; 127/250 VDC		BLANK ¾" NPT entries		EM1^C Integral emergency battery back-up		BLANK Natural aluminum			
N Neutral white, 4000K, 80 CRI		UNV34 347-480 VAC		1R ¾" NPT entries with ½" reducers				P Painted (gray, epoxy)			
W Warm white, 3000K, 80 CRI								WH Painted (white, epoxy)			
Length / lumens		Mounting style^B		Lens		Enhanced surge					
4 4 ft. length, 8,000 lumens		BLANK Flush ceiling/wall mount		BLANK Clear glass		SRG1 120-277 VAC integrated ≥ 10kV surge protection module					
2 2 ft. length, 4,000 lumens		CS Ceiling/swivel mount		S891 Diffused glass		SRG3 347-480 VAC integrated ≥ 10kV surge protection module					
		CW Ceiling/wall mount offset		S903 Clear polycarbonate							
		P12 Pole mount, 1.25" diameter		S903D Diffused polycarbonate							
		P15 Pole mount, 1.50" diameter									
		P20 Pole mount, 2.00" diameter									
Optics^A											
BLANK Standard											
N Full cut-off											

Options:

Description	Suffix	Description	Suffix
• Diffused glass lens	S891	• Gray epoxy powder coat	P
• Clear polycarbonate lens	S903	• White epoxy powder coat	WH
• Diffused polycarbonate lens	S903D		

Accessories (ordered separately):

M2-FLUSH-MT-KIT	Flush ceiling/wall mount
M2-CEILING-SWIVEL-KIT	Ceiling/swivel mount
M2-CEILING-WALL-KIT	Ceiling/wall mount offset
SS KIT	Safety chain kit
M2-PM-KIT-1.25	Pole mount kit, 1.25" diameter
M2-PM-KIT-1.5	Pole mount kit, 1.50" diameter
M2-PM-KIT-2.0	Pole mount kit, 2.00" diameter

Note: Conduit entry plugs and Mounting kits are shipped with the fixture based on the mounting type selected within the catalog structure. Individual mounting kits are also available, should you wish to change the mounting style in the field.

Replacement driver kits (ordered separately)

M2-MLLA2-UNV1-DRIVER-KIT	120-277 VAC driver replacement for 2 ft. linear
M2-MLLA2-UNV34-DRIVER-KIT	347-480 VAC driver replacement for 2 ft. linear
M2-MLLA4-UNV1-DRIVER-KIT	120-277 VAC driver replacement for 4 ft. linear
M2-MLLA4-UNV34-DRIVER-KIT	347-480 VAC driver replacement for 4 ft. linear

Battery module replacement kit (ordered separately)

MLLA-EM1-M2-KIT	Kit includes the battery, emergency driver, gasket and mounting hardware
------------------------	--

Surge module replacement kits (ordered separately)

M2-MLLA-SRG1-KIT	Kit includes the UNV1 surge module, bracket, wiring terminals and mounting hardware
M2-MLLA-SRG3-KIT	Kit includes the UNV34 surge module, bracket, wiring terminals and mounting hardware

^A Full cutoff option available with clear window options. Diffused window options may have illumination outside of the cutoff threshold specified.

^B Pendant mount is integral to fixture and available on all models regardless of mounting option chosen.

^C EM1 option available only with UNV1 input power option.

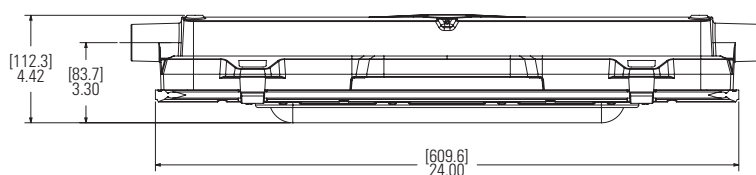
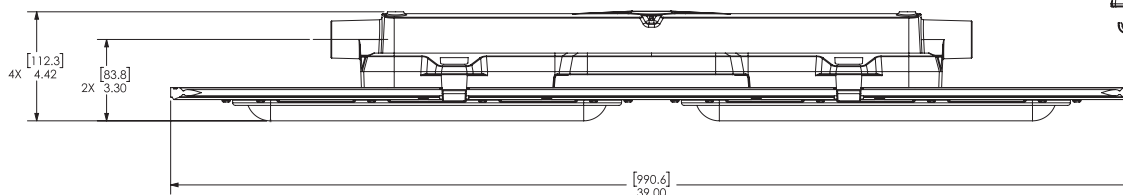
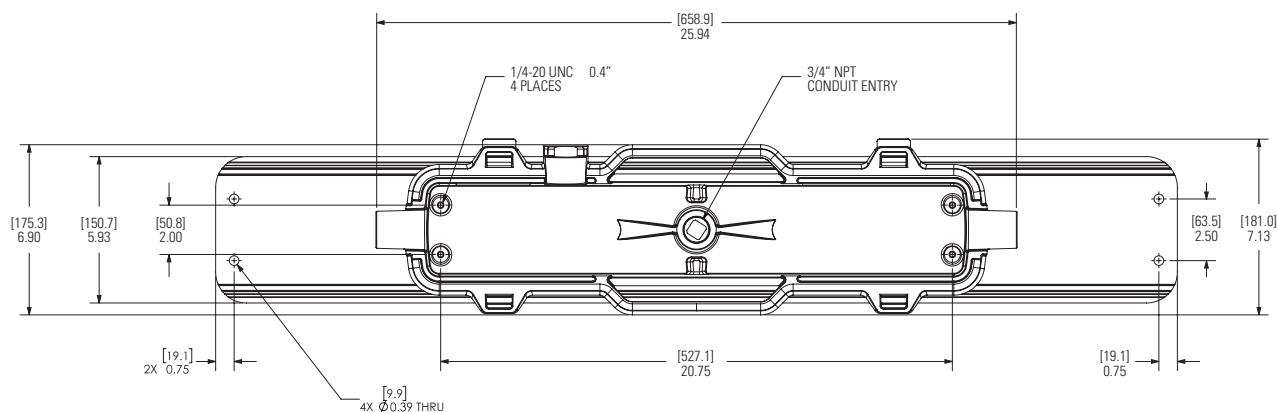
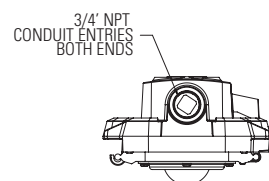
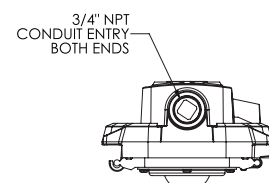
For land-based drilling

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

21

Dimensions:

**DLLA2-M2****DLLA4-M2**

Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

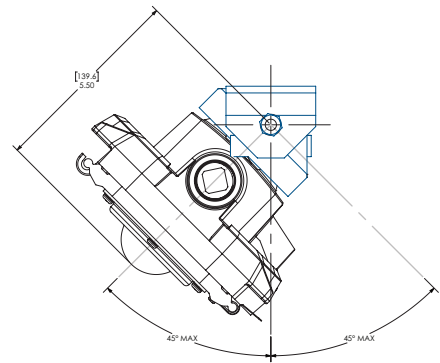
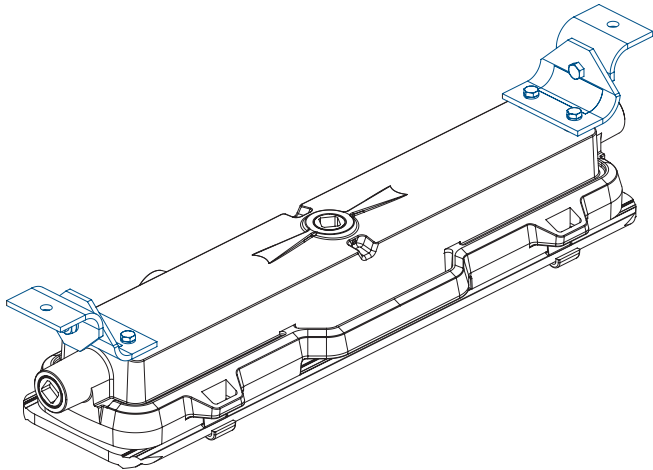
UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

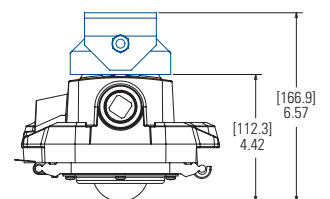
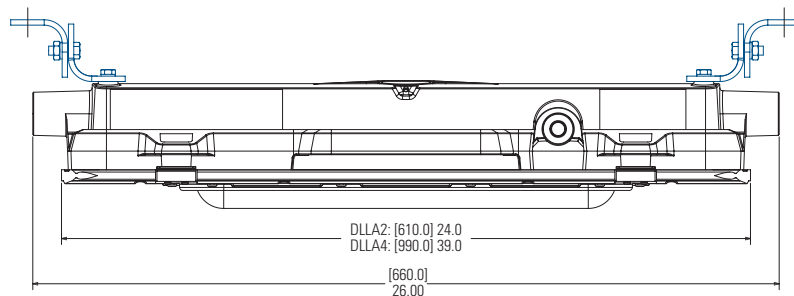
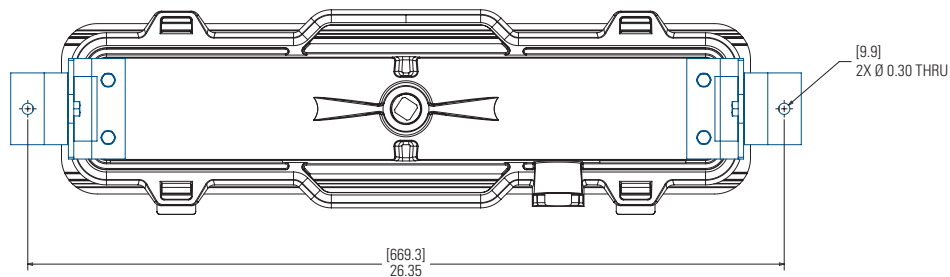
2L

Mounting options:

Ceiling mount swivel kit
M2-CEILING-SWIVEL-KIT



MAXIMUM ROTATION, CEILING SWIVEL MOUNT



Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

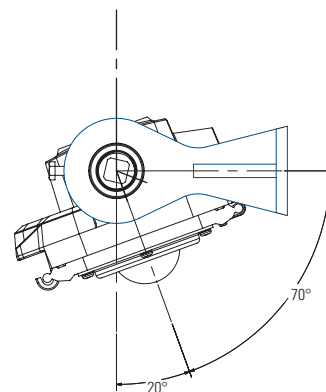
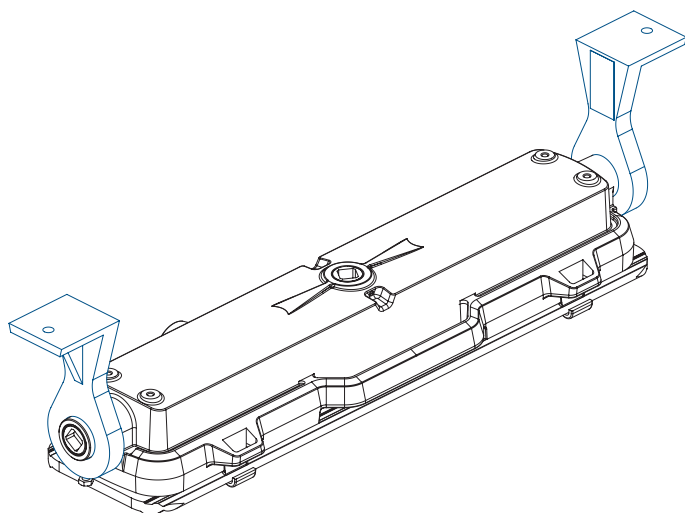
UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

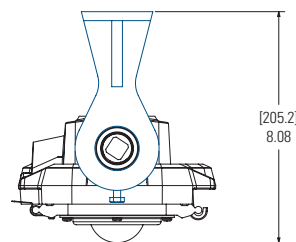
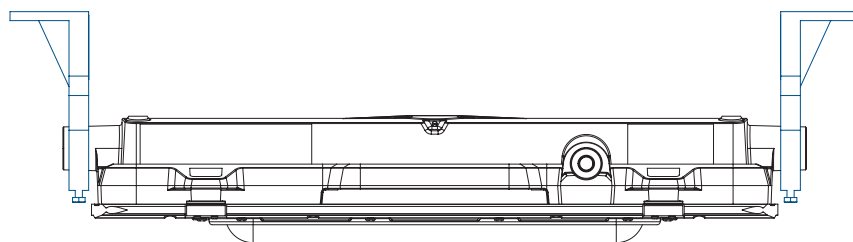
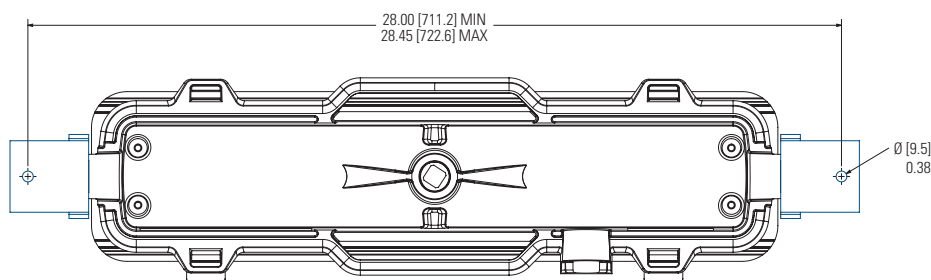
2L

Mounting options (continued):

Ceiling/wall mount kit
M2-CEILING-WALL-KIT



MAXIMUM ROTATION, WALL MOUNTING



Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

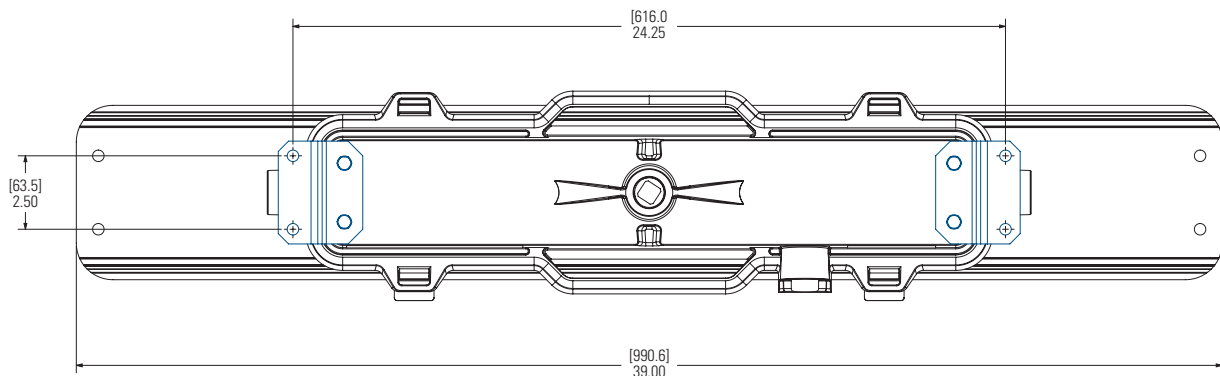
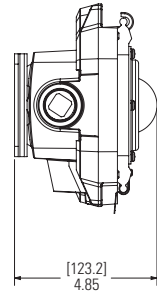
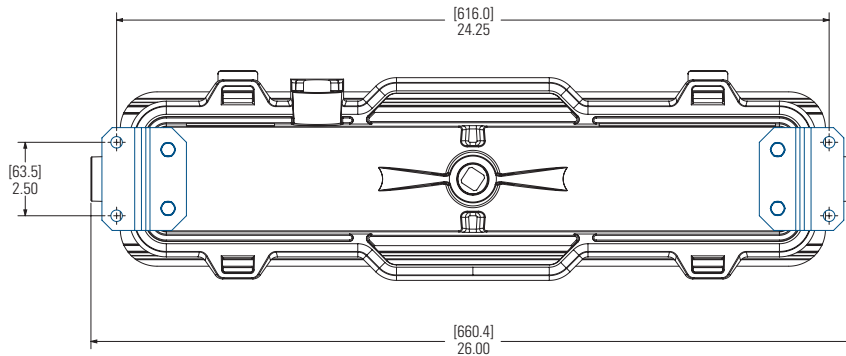
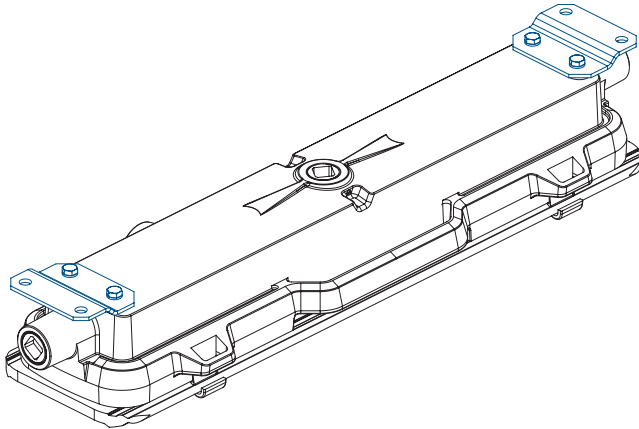
UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

Mounting options (continued):

Flush mount kit
M2-FLUSH-MT-KIT

2L



Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

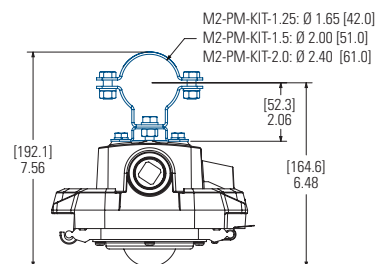
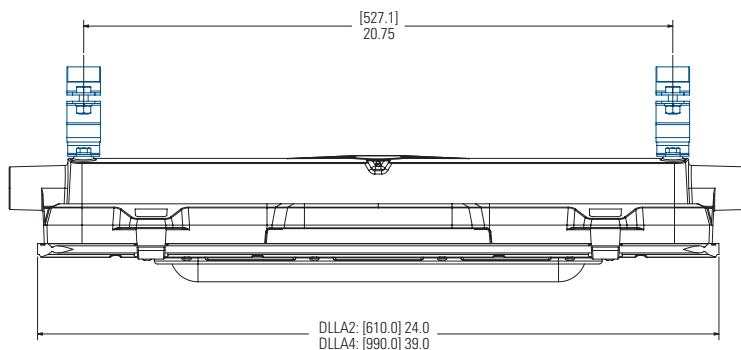
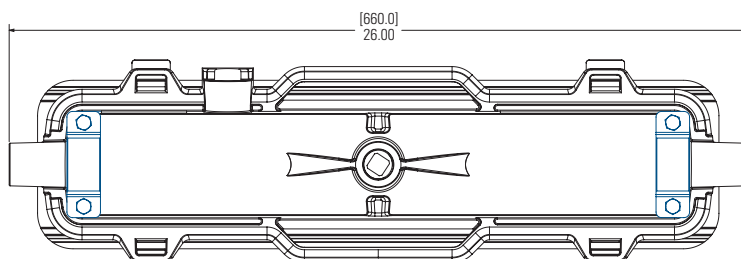
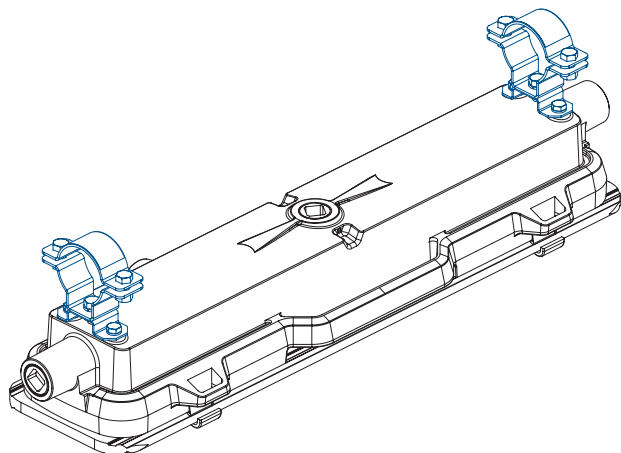
UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

2L

Mounting options (continued):

Pole mount kit
M2-PM-KIT1.25/1.5/2.0



Pauluhn DLLA LED luminaires

For land-based drilling

Cl. I, Div. 2, Groups A, B, C, D
Cl. I, Zone 2
Cl. II, Div. 2, Groups F, G
Cl. III

UL Listed
CSA Certified
Marine & Wet Locations
Type 4X; IP66/IP67

2L

Mounting options (continued):

Pendant mount

