



## Specifications

# LED Module M1H-H Series



### Features

- Lumileds Luxeon TX LED;
- IP68 rated modules;
- 5VA rated for fire resistance;
- Lumen flux: up to 6100lm per module;
- Low maintenance cost with lifetime >60,000hrs (L70);
- Multiple lighting distribution options available;
- Optical lens transmittance up to 98%;
- Multiple modules can easily be connected in series via connector offering;
- 10 years warranty;
- Approvals:  

### Applications

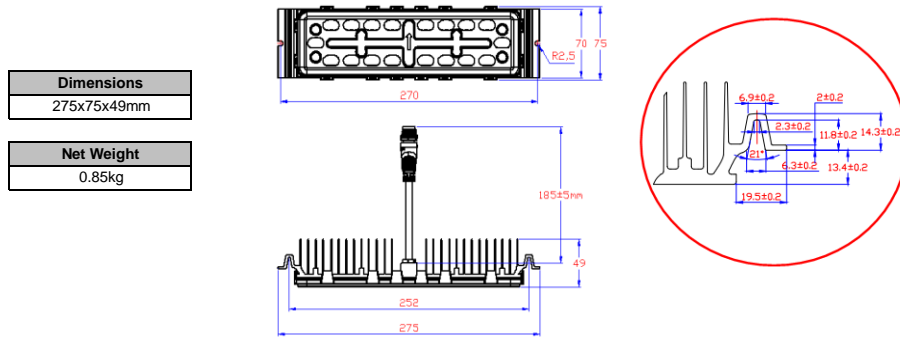
- Street Lighting
- Tunnel Lighting

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## Mechanical Drawings



Tolerance: ±2.0mm, unless otherwise specified.

## Performance

Series	Lighting Source	Drive Current	T <sub>c</sub> [7]	Nominal CCT	Minimum CR [3]	Minimum Flux [1][2][3]	Typical Flux [1][2][3]	Typical Efficacy [1][2][3]	Color Consistency	Location of T <sub>c</sub> Point	
M1H-H	18 x Lumileds Luxeon TX LEDs	700mA	50°C	3000K	70	3990lm	4200lm	117lm/W	5 SDCM	On the heat sink of the module, 17mm from the edge and 33mm apart (16.5mm on either side of the centerline of the module).  See the picture below:	
				4000K		4275lm	4500lm	125lm/W			
				5000K		4275lm	4500lm	125lm/W			
				3000K	80	3392lm	3570lm	99lm/W			
				4000K		3634lm	3825lm	107lm/W			
				5000K		3634lm	3825lm	107lm/W			
		3000K	1050mA	65°C	3000K	70	5415lm	5700lm			102lm/W
		4000K			5795lm		6100lm	109lm/W			
		5000K			5795lm		6100lm	109lm/W			
		5700K			80	5795lm	6100lm	109lm/W			
		3000K				4603lm	4845lm	87lm/W			
		4000K				4926lm	5185lm	93lm/W			
5000K	4926lm	5185lm	93lm/W								

Notes: [1] Flux and efficacy values above are based on steady-state measurements done in 25°C ambient temperature where there is a tolerance of ±3°C on T<sub>c</sub>.

[2] Flux and efficacy data above are based on lens transmittance 98%.

[3] Lumileds LED maintains a tolerance of ±6.5% on luminous flux and ±2 on CRI.

Item	Minimum	Typical	Maximum
Forward Voltage (@ 700mA, T <sub>c</sub> =50°C) [4][5]	49.5V	51.3V	54V
Power Consumption (@ 700mA, T <sub>c</sub> =50°C) [4]	34.65W	35.91W	37.8W

Notes: [4] Voltage and power values are based on calculated LED values @ 100% driver efficiency.

Use for reference only since temperature and LED driver current have influence on forward voltage and on power consumption.

[5] Lumileds LED maintains a tolerance of ±0.06V on forward voltage measurements.

Current	L70	Maximum T <sub>c</sub> [6]
700mA	>60,000 hrs	100.7°C
1050mA	>60,000 hrs	98.5°C

Current	@700mA	@1050mA	@Maximum [7] 1100mA
Maximum T <sub>c</sub> [6]	100.7°C	98.5°C	98.2°C

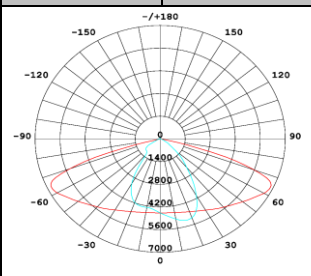
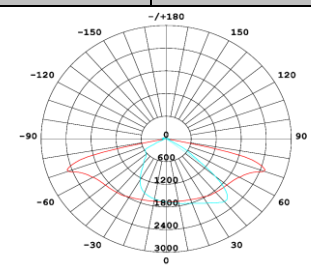
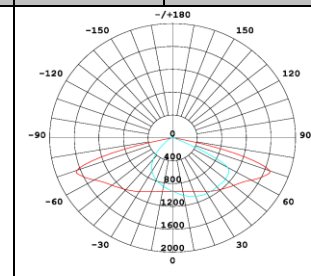
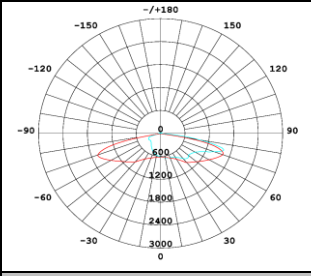
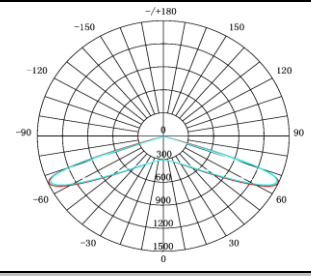
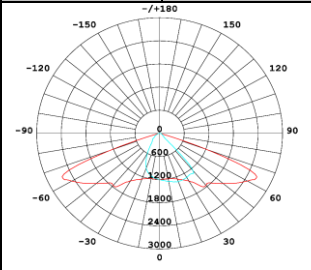
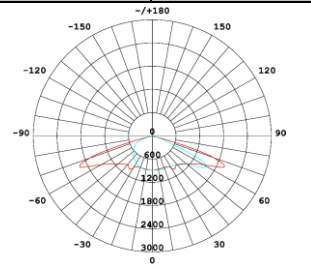
Notes: [6] Theoretically calculated T<sub>c</sub> value based on maximum T<sub>s</sub> 105°C as per warranty.

[7] Maximum actual drive current. Drive current, including current ripple, should not exceed 1200mA.

IP Rating	Storage Temperature	Relative Humidity
IP68	-40~+50°C	10%~90%

**Beam Type**

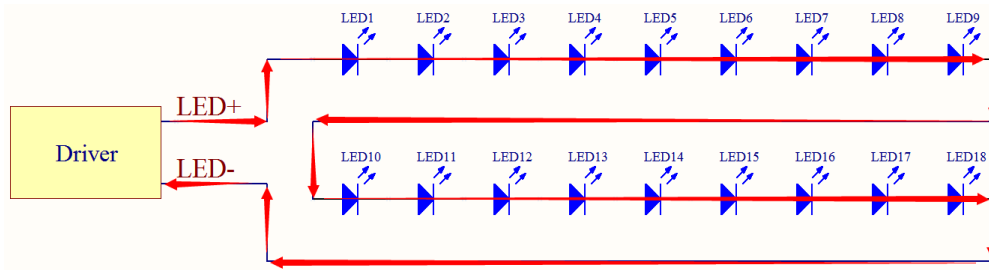
**For Street Light Applications**

Lens Code	M1H-H-T1S (Type I Short)	M1H-H-T2M (Type II Medium)	M1H-H-T3M (Type III Medium)
<b>For Modules Parallel with Road</b>	Lens Transmittance: 98%	Lens Transmittance: 98%	Lens Transmittance: 93%
			
	Lens Transmittance: 93%	Lens Transmittance: 98%	
			
Lens Code	M1H-H-T1SV (Type I Short Vertical)	M1H-H-T3MV (Type III Medium Vertical)	
<b>For Modules Perpendicular to Road</b>	Lens Transmittance: 93%	Lens Transmittance: 93%	
			

Notes: — C0/180 — C90/270

Installation guide: the arrow on the lens (parallel with C90/270) should be perpendicular to road and directs to road center.

**Circuit Diagram**












**Drivers Recommendation**

Driver Description	Inventronics	Philips
Driver for 1 module @700mA	EUC-052S070DT <sup>5</sup>	XI075C070V105CNY2 <sup>5</sup>
Driver for 2 modules @700mA	EUG-096S105DT <sup>4</sup>	XI100C110V143BSY1 <sup>45</sup>
Driver for 3 modules @700mA	EUG-150S105DT <sup>4</sup>	LEDINTA0700C210DO <sup>5</sup>
Driver for 4 modules @700mA	EUG-200S105DT <sup>4</sup>	XI300C150V300BSR1 <sup>45</sup>
Driver for 5 modules @700mA	EUG-240S105DT <sup>4</sup>	XI300C150V300BSR1 <sup>45</sup>
Driver for 1 module @1050mA	EUG-075S105DT <sup>4</sup>	XI100C110V143BSY1 <sup>45</sup>
Driver for 2 modules @1050mA	EUG-150S105DT <sup>4</sup>	XI150C105V140CNF1 <sup>5</sup>
Driver for 3 modules @1050mA	EUG-200S105DT <sup>4</sup>	XI300C150V300BSR1 <sup>45</sup>
Driver for 4 modules @1050mA	EUD-320S150DT <sup>4</sup>	XI300C150V300BSR1 <sup>45</sup>
Driver for 5 modules @1050mA	EUD-320S150DT <sup>4</sup>	XI300C150V300BSR1 <sup>45</sup>

Notes:

1. Alternative board + driver configurations can be evaluated upon request.
2. Please refer to the driver datasheet for detailed specifications.
3. All drivers feature 0-10V dimming.
4. Driver output current can be adjusted.
5. For outdoor lighting application, this driver should work with a line-earth 10KV SPD.

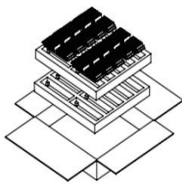
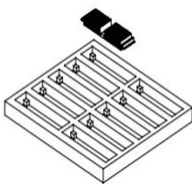
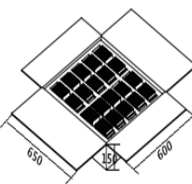
### Waterproof Connectors Recommendation

Picture	Model	Description	Length
	C2A-01M500	IP68 female connector for 1 module	Single female terminal 49.5mm + flying leads 550±50mm
	C2A-S2M500	IP68 female connector for 2 modules in series	Dual female terminal 78.1mm + flying leads 550±50mm
	C2A-S3M500	IP68 female connector for 3 modules in series	Triple female terminal 113.1mm + flying leads 550±50mm
	C2A-S4M500	IP68 female connector for 4 modules in series	Quad female terminal 148.1mm + flying leads 550±50mm
	C2A-01F500	IP68 male connector	Single male terminal 55.7mm + flying leads 550±50mm
	C2A-1FS1M	IP68 male and female connector for extension	Single female terminal 49.5mm + cable 200±20mm + single male terminal 55.7mm
	C2A-S2M200F	IP68 male and female connector for 2 modules in series	Dual female terminal 78.1mm + cable 200±20mm + single male terminal 55.7mm
	C2A-S3M200F	IP68 male and female connector for 3 modules in series	Triple female terminal 113.1mm + cable 200±20mm + single male terminal 55.7mm
	C2A-S4M200F	IP68 male and female connector for 4 modules in series	Dual female terminal 148.1mm + cable 200±20mm + single male terminal 55.7mm

Notes: The connectors are allowed to be used in combination for 5-module connection and extending purpose.

Cable Specifications	Withstanding DC Voltage	Withstanding Current	Certification	Working Temperature
2x18 AWG	420Vdc	10A	UL	-40~+80°C

### Packaging

10 pcs/tray	2 trays/ carton	20 pcs/carton
		

- Notes:
1. Carton dimensions: 650x600x150mm
  2. Gross weight: 19.8kg (Empty package: 2.8kg)

## Module Part Number

Example:

**M1H H T1S LTX 730**  
 1 2 3 4 5

1. Module Series	2. Voltage	3. Beam Type	4. LED Type	5. CRI/CCT
<b>M1H</b> - High Power LED's	<b>H</b> = 49.5-54V	<b>T1S</b> = Type I Short <b>T2M</b> = Type II Medium <b>T3M</b> = Type III Medium <b>T4M</b> = Type IV Medium <b>T5M</b> = Type V Medium <b>T1SV</b> = Type I Short Vertical <b>T3MV</b> = Type III Medium Vertical	<b>LTX</b> = Lumileds Luxeon TX	<b>730</b> = 70CRI/3000CCT <b>740</b> = 70CRI/4000CCT <b>750</b> = 70CRI/5000CCT <b>757</b> = 70CRI/5700CCT <b>830</b> = 80CRI/3000CCT <b>840</b> = 80CRI/4000CCT <b>850</b> = 80CRI/5000CCT