TLM-R20A

2.5” Ø Line Voltage LED Module for OEM Lighting Fixture Products

FEATURES

- LED alternative to 39W T6 CMH fits in most PAR20 fixtures
- 2.5” Ø x 3.65” form factor includes integrated driver
- Input volatage: 120V or 120/277V
- Light output to 1280 lumens
- Four field-adjustable, pushbutton activated light levels
- Distribution: 15°, 23°, 35°, 51° or 180° beam angle
- Patented LEDSENSE® Thermal Management simplifies integration and ensures reliability and lumen maintenance
- Efficacy: up to 75 lm/W delivered
- CCT: 2700K, 3000K, 3500K, 4000K or 3000K Crisp White
- CRI: >80 at all CCTs; optional >90 CRI
- Lumen Maintenance: L70 >60,000 hours

SPECIFICATION

APPLICATION

Fully-integrated, self-contained LED light module with integrated driver adapts to most PAR20 fixtures, including sealed outdoor fixtures, with minimal design effort and the lowest possible LED system cost. Key features include LEDSENSE® closed-loop thermal control that maximizes light output while assuring long-term lumen maintenance.

LED

Provided with high efficiency Cree LED chips. Color variation no greater than 3-step MacAdam Ellipses.

DRIVER

LED module includes integrated driver designed and manufactured by Sielo. Driver includes LEDSENSE® thermal fold-back, allowing maximum light output in any environment while assuring long-term reliability. Advanced electronics continuously monitor temperatures to ensure LED power does not exceed limits tested by the LED manufacturer to yield no less than 70% of initial light output at more than 60,000 hours of operation.

ENVIRONMENTAL

Functions normally within an operating temperature range of -40° C. to 40° C. (-40° F. to 104° F.) at 0 to 95% relative humidity.

PERFORMANCE

Provides color quality =/>80 CRI and maintains 70% lumen output at more than 60,000 hours per IES TM-21-11, based on the LED manufacturer’s measurement per IES LM-80-08 @ 10,000 hours. To be extended as additional data becomes available.

REGULATORY COMPLIANCE

LED module includes the following regulatory and compliance approvals: UL 8750 Recognized Component — damp locations; CSA Standard C22.2 No. 250.0-08; FCC Part 15, Unintentional Radiators Class A; RoHS.

QUALITY & RELIABILITY

Designed and manufactured within an ISO 9001:2008 certified Quality Management System. Product design validated by Reliability Prediction analysis, based on Telcordia SR-332 Ed. 3. Demonstrated Mean Time Between Failure (MTBF) >3.4 Million hours with a 90% confidence level, which equates to an annual failure rate (AFR) of <0.25%.

WARRANTY

5-year limited warranty. Complete warranty terms located at http://sielo.com/warranty.

MODEL & OPTIONS

TLM-R20A	-		12		

MODEL	VOLTAGE	LIGHT LEVEL	CCT	BEAM ANGLE
TLM-R20A = Line voltage LED module	**A** = 120V, phase dimming	**12** = 1200 lm range	**27** = 2700K	**15** = 15° beam angle
	B* = 120/277V, 0-10V and phase dimming		**30** = 3000K	**23** = 23° beam angle
			35 = 3500K	**35** = 35° beam angle
			40 = 4000K	**51** = 51° beam angle
			2H = 2700K >90 CRI	**HS** = 180° half sphere
			3H = 3000K >90 CRI	
			3C = 3000K Crisp White	

* If connected to a phase dimmer, the pushbutton activated light output control is automatically de-activated and the dimmer will be the sole method for controling light output. If connected to a 0-10V dimmer, the lowest pushbutton setting is de-activated. See page 2 for more information on R20 pushbutton activated light output control.

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PERFORMANCE

TLM-R20A Color Temperature (CCT)	2700K	3000K	3500K	4000K
CRI Minimum [typical]	80 [83]	80 [83]	80 [83]	80 [83]
R9	4	5	7	12
Light Output (lumens)				
@120V AC	1180	1220	1270	1280
@ 277V AC	1148	1224	1176	1160
Power (watts)				
@120V AC	16.65	17.05	17.00	16.94
@ 277V AC	18.92	19.63	19.62	19.61
Efficacy (lm/W)				
@120V AC	71	72	75	76
@ 277V AC	61	62	60	59
CBCP (cd)				
15° optic	7322	7570	7879	7942
24° optic	4571	4726	4919	4958
35° optic	3185	3293	3428	3455
51° optic	1950	2016	2098	2115

NOTES

Tested by third party per IESNA-LM79-08.

All specifications subject to tolerance of ± 10%.

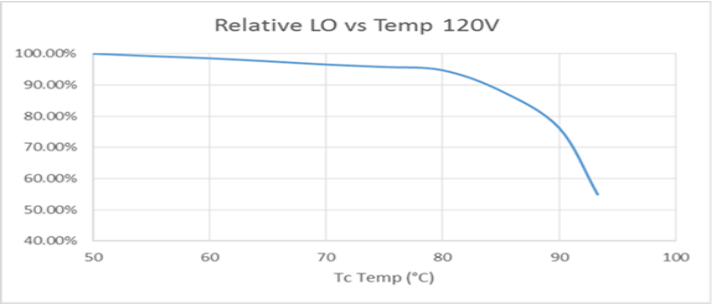
Typical performance @ 25° C. heatsink temperature, Tc. See Relative Light Output vs. Temperature (left) for the effect of LEDSENSE® thermal fold-back on light output at various operating temperatures.

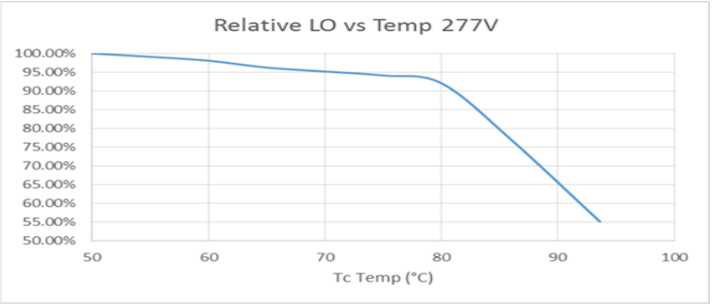
FIELD-ADJUSTABLE, PUSHBUTTON ACTIVATED OUTPUT

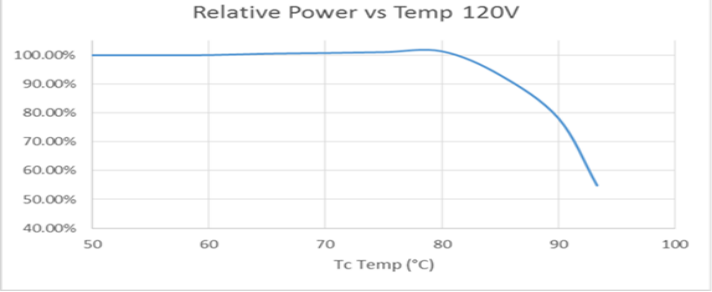
TLM-R20A includes four field-adjustable light output modes (100%, 80%, 55% and 18%). The selected setting is stored in memory. The device automatically switches to that mode after power has been interrupted. If the engine is connected to a phase dimmer, the push button is automatically de-activated and the dimmer will be the sole control method of the light output. If connected to a 0-10V dimmer, the lowest mode is de-activated.

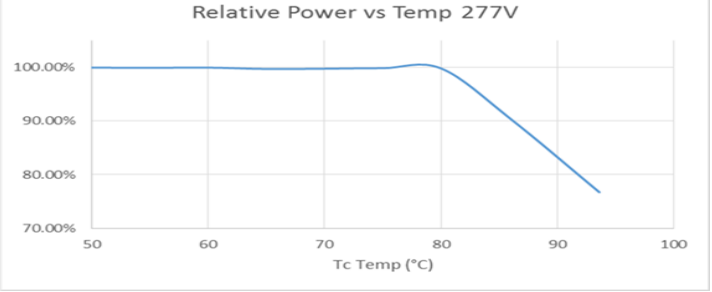
LEDSENSE® OPERATION, THERMAL DE-RATING, & LUMEN MAINTENANCE

The TLM-R20a employs Sielo patented LEDSENSE® Thermal Management Technology to automatically provide maximum light output in various fixtures and operating conditions while assuring long-term lumen maintenance. LEDSENSE® regularly measures the operating temperature and ensures compliance with a pre-programmed temperature and drive-current profile. This profile is based on the LED manufacturer's LM-80 data report and minimum L70 >60,000-hour lumen maintenance curves. LEDSENSE® is always active, and will compensate for variation in thermal conditions due to heatsinking, ambient air, light engine positioning, or any other variable that affects the operating temperature. The thermal de-rating curve below identifies the relative light output that can be expected under various thermal conditions. The LEDSENSE® power curve identifies the reduction in input power over temperature.









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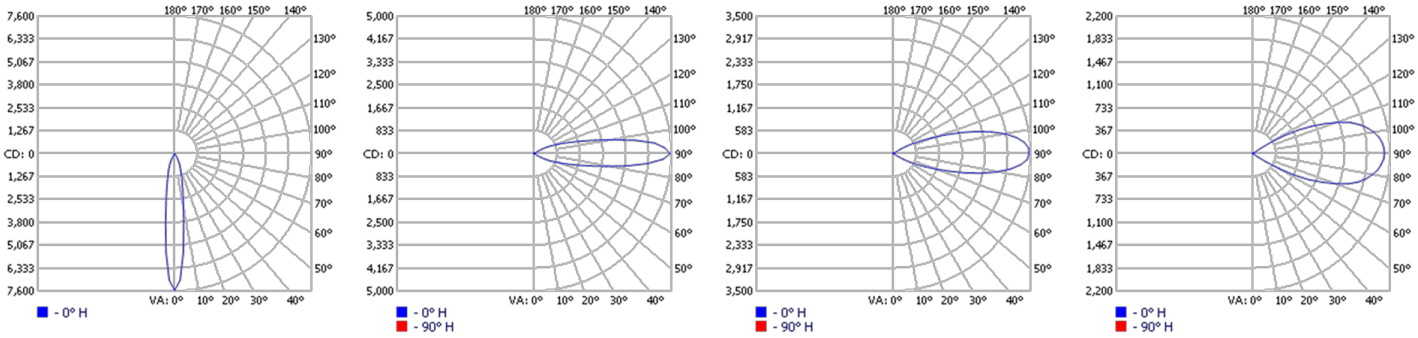
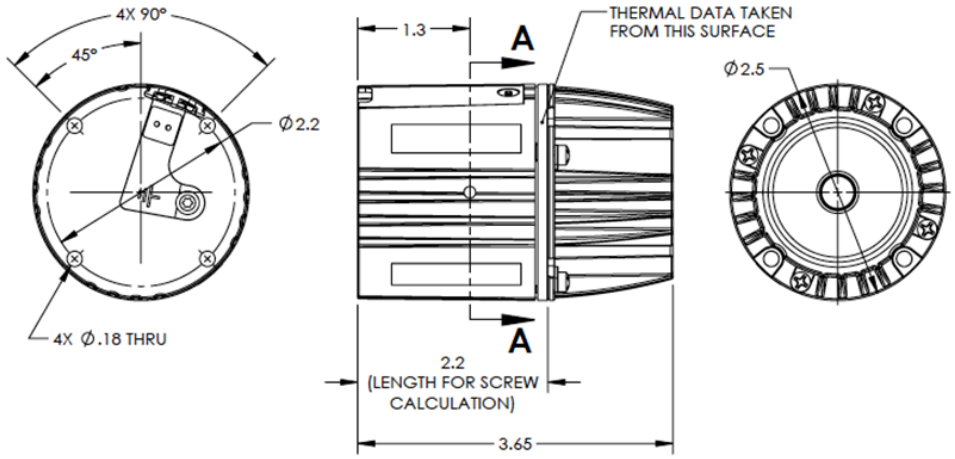
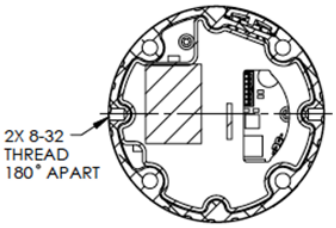
PHOTOMETRY

Relative Candela Distribution (4000K)

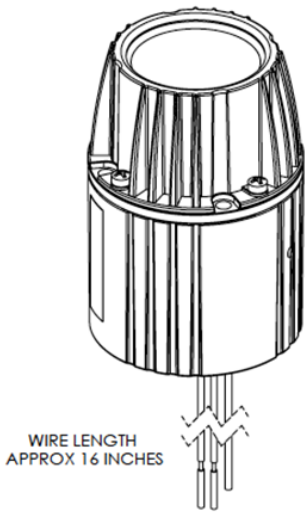


DIMENSIONS





SECTION A-A



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