

TLM-R16D-A50

1.84" Ø Low Voltage LED Module for OEM Lighting Fixture Products



FEATURES

- Compliant to MR16 diameter and 2-pin G5.3 connection
- High/Low switch replicates 50W or 35W halogen
- Equal to MR16 50W halogen form, light output and CBCP
- 12V AC/DC input in one flexible unit
- Patented LEDSENSE® Thermal Management simplifies integration and ensures reliability and lumen maintenance
- Efficacy: up to 131 lm/W delivered
- CCT: 2700K, 3000K, or 4000K
- CRI: >80 at all CCTs
- Lumen Maintenance: L70 >60,000 hours
- Dimmable with standard low-voltage phase-dimmers
- Compatible w/ low-voltage magnetic & electronic transformers



SPECIFICATION

APPLICATION

Fully-integrated, self-contained LED light module with microprocessor-based control system adapts to most MR16 spot 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. Integrated Dynamic Transformer Recognition™, or DTR™, simplifies design efforts and installation, and allows the use of standard cost-effective magnetic or electronic halogen transformers and phase-dimmers.

LED

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

DRIVER

Provided with integral LED driver with microprocessor-based control system 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 36,000 hours of operation.

ENVIRONMENTAL

Functions normally within an operating temperature range of -40° C. to 55° C. (-40° F. to 131° F.) at 0 to 95% relative humidity.

PERFORMANCE

Provides color quality ≥ 80 CRI and maintains 70% lumen output at 36,000 hours per IES TM-21-11, based on the LED manufacturer’s measurement per

IES LM-80-08 @ 6,000 hours. To be extended as additional test hours are completed.

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.

WARRANTY

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

MODEL & OPTIONS

TLM-R16D	-	A	50			
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MODEL	VOLTAGE	*LIGHT LEVEL	CCT	BEAM ANGLE	OPTIONS
TLM-R16D = Low voltage LED module	A = 12V AC/DC	50 = 50W halogen equivalent	27 = 2700K 30 = 3000K 40 = 4000K	12 = 12° beam angle 21 = 21° beam angle 41 = 41° beam angle	A = No option B = Install aid

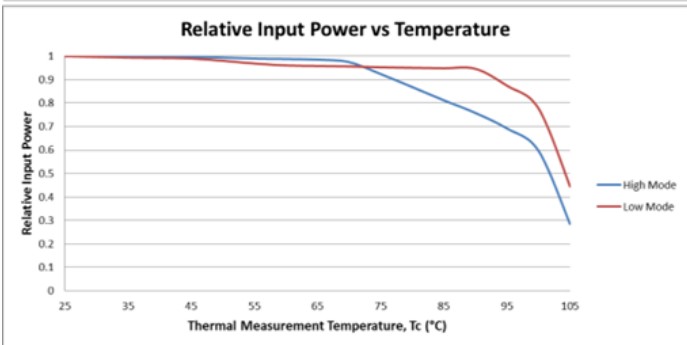
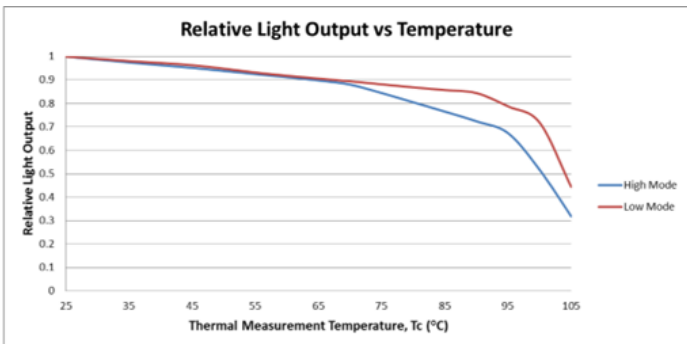
* Indicates typical light output in "HIGH" mode as compared to a Halogen source. See PERFORMANCE table on page 2 for specific lumen output and CBCP data.

LED module with Installation Aid option (-B)



PERFORMANCE

TLM-R16D-A50																		
Color Temperature (CCT)	2700K				3000K				4000K									
CRI Minimum [typical]	80 [82]				80 [82]				80 [82]									
Power @ 12V AC: High Low (watts)	9.17 5.79				9.20 5.80				9.33 5.87									
Power @ 12V DC: High Low (watts)	6.32 4.00				6.35 4.00				6.43 4.05									
Beam Angle	12°		21°		41°		12°		21°		41°							
Light Output: High Low (lumens)	694	505	694	505	694	505	725	525	725	525	725	525	732	531	732	531	732	531
Average CBCP: High Low (cd)	7925	5574	3298	2320	1391	978	8279	5795	3446	2412	1454	1017	8358	5861	3479	2439	1468	1028
Efficacy @ 12V AC: High Low (lm/W)	75	87	75	87	75	87	78	90	78	90	78	90	78	90	78	90	78	90
Efficacy @ 12V DC: High Low (lm/W)	109	126	109	126	109	126	114	131	114	131	114	131	113	131	113	131	113	131



NOTES

Tested by third party per IESNA-LM79-08.

All specifications subject to tolerance of ± 10%.

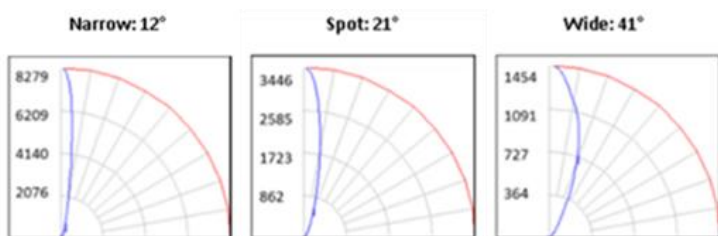
Typical performance @ 25° C. heatsink temperature, Tc. See Relative Light Output vs. Temperature (left) for the effect of LEDSENSE® thermal fold-back on light output at various operating temperatures.

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

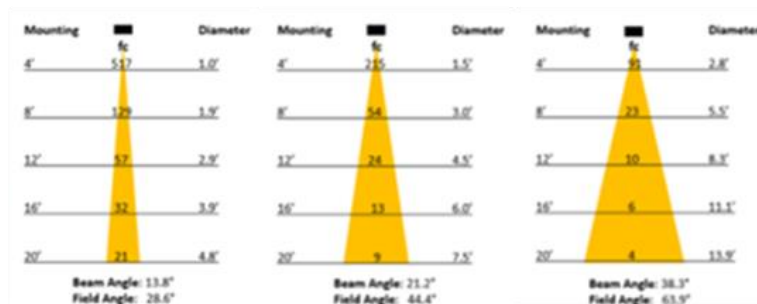
The TLM-R16D employs Sielo patented LEDSENSE® Thermal Management Technology to automatically provide maximum light output in various fixtures and operating conditions while assuring long-term lumen maintenance. LEDSENSE® regularly measures the operating temperature and ensures compliance with a pre-programmed 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.

PHOTOMETRY

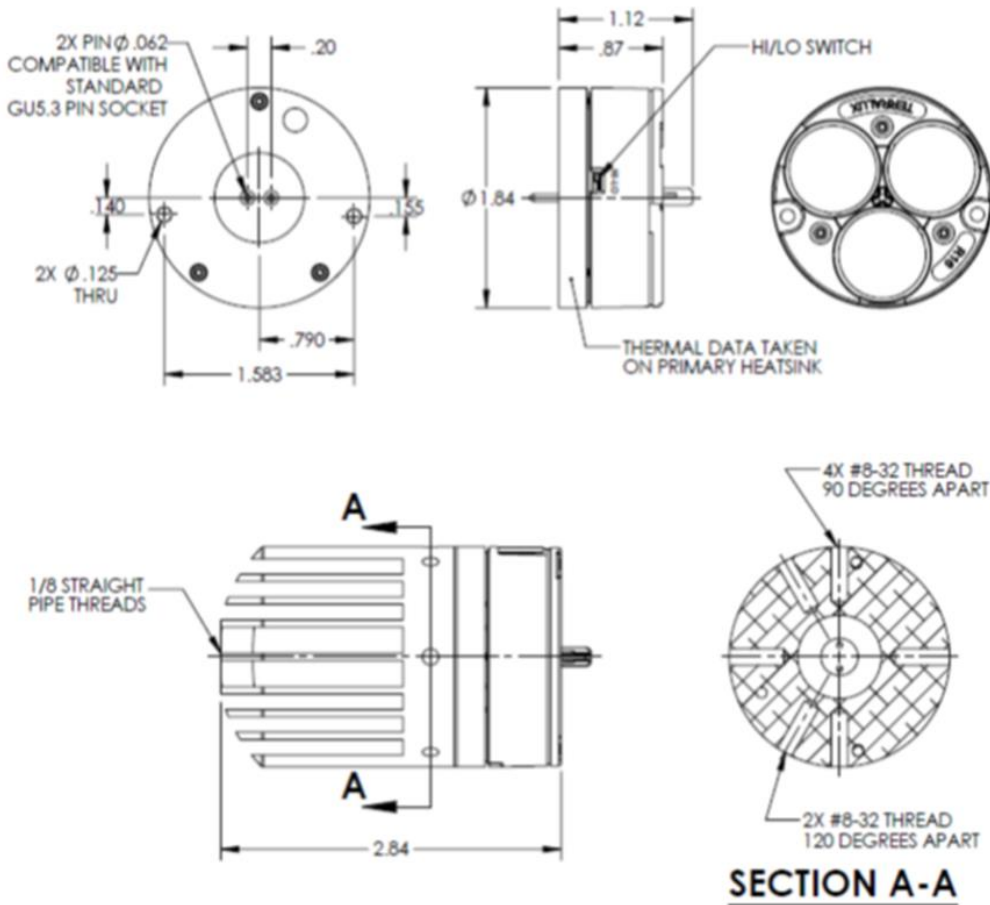
Relative Candela Distribution (3000K)



Illuminance at a Distance (3000K)



DIMENSIONS



ACCESSORIES

HEATSINK ACCESSORIES

Model	Description
TLMA-227000007	Thermal pad
TLMA-R16-A000	Stand-alone heatsink
TLMA-R16-A100	Heatsink w/ connector + 8" pigtail

Accessory TLMA-R16-A100



REPLACEMENT LENSES

Model	Description
TLMA-102000010	12° lens (quantity = 48 pieces)
TLMA-102000019	21° lens (quantity = 48 pieces)
TLMA-102000018	41° lens (quantity = 48 pieces)

Replaceable lenses

