

TLM-R16D-A35

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 35W or 20W halogen
- Equal to MR16 35W halogen form, light output and CBCP
- 12/24V AC/DC input in one flexible unit
- Patented LEDSENSE® Thermal Management simplifies integration and ensures reliability and lumen maintenance
- Efficacy: up to 79 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 more than 60,000 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 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.

WARRANTY

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

MODEL & OPTIONS

TLM-R16D	A	35			
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MODEL	VOLTAGE	*LIGHT LEVEL	CCT	BEAM ANGLE	OPTIONS
TLM-R16D = Low voltage LED module	A = 12/24V AC	35 = 35W 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

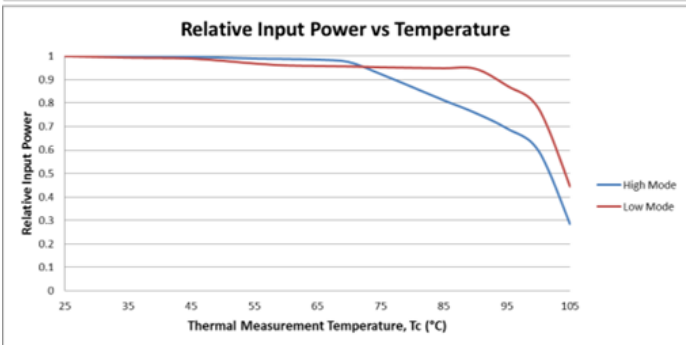
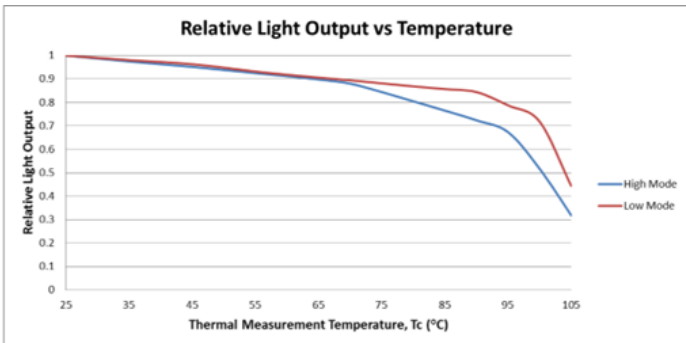
* Indicates typical light output in "HIGH" mode as compared to a Halogen source. See PERFORMANCE table on page 2 for specific lumen output and CBCP data.

LED module with Installation Aid option (-B)



PERFORMANCE

TLM-R16D-A35												
Color Temperature (CCT)	2700K				3000K				4000K			
CRI Minimum [typical]	80 [81]				80 [82]				80 [84]			
Power @ 12V AC: High Low (watts)	5.90 3.99				5.98 4.04				6.12 4.11			
Power @ 24V AC: High Low (watts)	5.46 3.91				5.60 4.00				5.66 4.04			
Beam Angle	12°		21°		41°		12°		21°		41°	
Light Output: High Low (lumens)	408 308	408 308	408 308	416 313	416 313	416 313	423 320	423 320	423 320	423 320	423 320	
Average CBCP: High Low (cd)	7087 5350	1772 1337	892 673	7225 5436	1806 1358	909 683	7347 5558	1837 1389	924 699	924 699	924 699	
Efficacy @ 12V AC: High Low (lm/W)	69 77	69 77	69 77	69 77	69 77	69 77	69 78	69 78	69 78	69 78	69 78	
Efficacy @ 24V AC: High Low (lm/W)	74 78	74 78	74 78	74 78	74 78	74 78	74 79	74 79	74 79	74 79	74 79	



NOTES

Tested by third party per IESNA-LM79-08.

All specifications subject to tolerance of ± 10%.

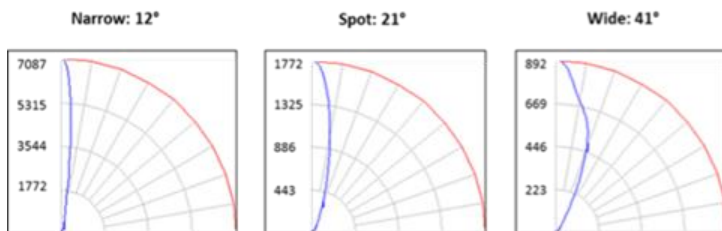
Typical performance @ 25° C. heatsink temperature, Tc. See Relative Light Output vs. Temperature (left) for the effect of LEDSENSE® thermal fold-back on light output at various operating temperatures.

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

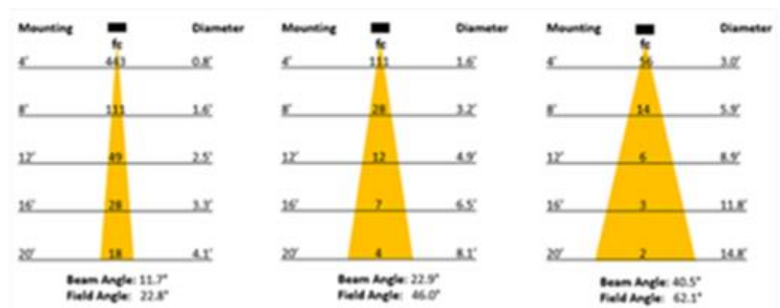
The TLM-R16D employs Sielo patented LEDSENSE® Thermal Management Technology to automatically provide maximum light output in various fixtures and operating conditions while assuring long-term lumen maintenance. LEDSENSE® regularly measures the operating temperature and ensures compliance with a pre-programmed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

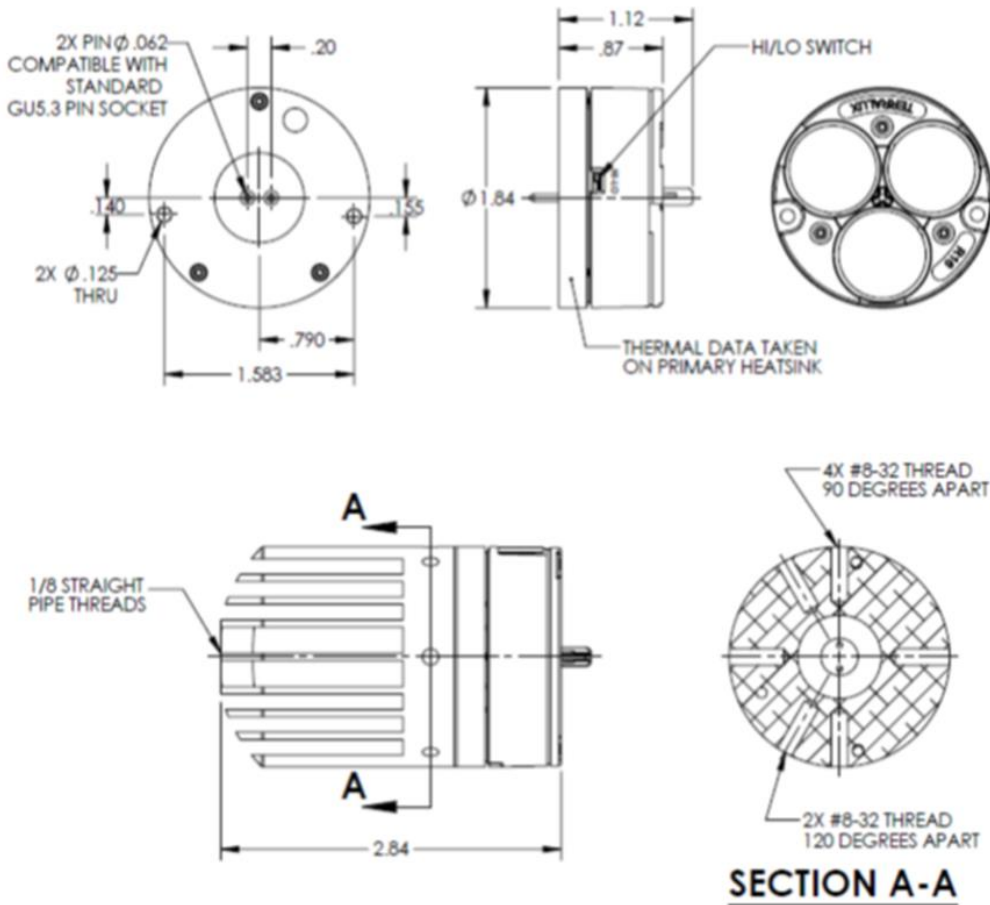
Relative Candela Distribution (3000K)



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

