

**HALO LED Module 1200 Series
For New and Existing Installations**

The Halo LED 1200 Series High Lumen Modules are universal voltage (120-277V) rated for commercial and residential applications. The Halo LED ML7128xxTUNVD010 Modules are designed for retrofit applications with an Edison screw base adapter (included) for use in compatible existing 6" nominal Non-IC housings OR may also be used in new construction with the LED dedicated Non-IC housing Series H750Tx. Halo LED 1200 Series Modules deliver in the range of 862-1541 lumens (depending upon the trim and color temperature selected); and the 1200 Series offers a selection of four color temperatures: 2700K, 3000K, 3500K, 4000K. Halo LED offers superior optical design that yields productive beam lumens, good cutoff and low glare.

Catalog #	Type
Project	
Comments	Date
Prepared by	

DESIGN FEATURES

The Halo LED 1200 Series offers comparable light output and distribution of a 90W PAR38 halogen lamp, a 120W BR40 incandescent lamp, or a 32W compact fluorescent luminaire (lamp & reflector trim), while consuming less than 25 watts.

Dimming

The HALO LED 1200 Series luminaire offers 0-10V dimming capability to <10% with 0-10V dimming controls.

Quality of Light

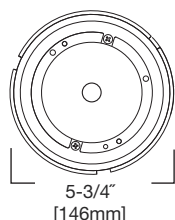
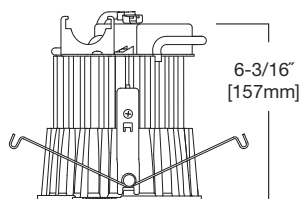
Halo 1200 Series Provides excellent color rendering (80 CRI), and a selection of four color temperatures (2700K, 3000K, 3500K and 4000K). CRI and color temperature performance conform to parameters established by ENERGY STAR® SSL standards (refer to ANSI-C78.377 - 2008 for CCT specifications). LED's have virtually no ultraviolet and minimal infrared wavelengths, and they do not direct heat like conventional lamps.

Optical Design

Optical design yields productive beam lumens, 50° cutoff, and low glare.

Life

Rated for 50,000 hours at 70% lumen maintenance.



Compatibility

The Halo ML7128xxTUNVD010 LED modules are designed for use in the dedicated H750Tx series Non-IC housings OR for retrofit applications in existing Halo or ALL-PRO™ H7T/ET7 Non-IC housings. The ML7128xxTUNVD010 Halo LED modules are designed for use in Non-IC construction only. Compatible HALO and ALL-PRO housings include model numbers:

- Dedicated LED Housings:
 - H750TD010, H750RTD010 and H750TCPD010 Non-IC Housing with 0-10V dimming connections included (use these housings for 0-10V dimming)
 - H750T, H750TCP Non-IC Housing (Non-Dim functionality only as these housings do not provide 0-10V dimming connections)
- Halo and All-Pro Incandescent Housings:
 - H7Tx and ET7x Non-IC Housing (Non-Dim functionality only as these housings do not provide 0-10V dimming connections)

Screw Base Adapter

Edison screw-base adapter supplied with module allows simple wiring connection to existing housing.

Module Construction

Durable die-cast and extruded aluminum construction conducts heat away from the LED keeping the junction temperatures below specified maximums even when installed in non-insulated ceiling environments.

Air-Tite™ Rating

The Halo LED module has passed restricted air flow testing, and now qualifies any housing to meet air-tight building codes. Certified under ASTM-E283 standards.

LED Driver

The LED module is controlled by a high efficiency driver with a power factor of >.90 at an input power of 90V-305V, 50/60Hz. Driver has integral thermal protection in the event of over temperature or internal failure.

Warranty

Cooper Lighting provides a three year limited warranty on the Halo LED Luminaire which includes the LED Module, LED Recessed Non-IC Housing and LED trims.

LED Module in New or Existing Non-IC Construction – Housings other than Halo or All-Pro

If used in Non-IC construction with recessed housings other than Halo or All-Pro the Cooper Lighting 3-year warranty applies to the LED Module and Trim only. As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes.

Installer is responsible to securely retain the LED Module and Trim in a housing at time of installation.

Labels

- UL/cUL Listed

Meets following requirements:

- State of California Title 24-2008 High Efficacy Compliant (with designated trims)
- International Energy Conservation Code (IECC) 2009 High Efficacy Compliant (with designated trims)
- Washington State Energy Code - AIR-TITE™
- New York State Energy Conservation Construction Code AIR-TITE™

Accessories

- Oversize Trim Rings (Goof Rings) - OT400P and OT403P oversize trim rings are installed behind the Halo LED trim ring to aid in masking ceiling irregularities and cut-out errors.
- H347 –The H347 (75VA rated) Step-down transformers for use with Non-IC housings and LED Modules (see Application Note).



**ML712830TUNVD010
1200 Series LED
0-10V DC
Dimmable Module**

**3000°K Correlated
Color Temperature**

49X_Series Trims

**6" LED Module and Trim
For New Construction OR
Retrofit Applications**

**FOR USE IN
NON-INSULATED CEILINGS
OR
INSULATED CEILINGS
BUT INSULATION MUST BE KEPT
3" FROM ALL SIDES OF FIXTURE**

1200 Series Energy Data:

<small>(Values at non-dimming line voltage)</small>	
Minimum Starting Temp:	-30°C (-22°F)
EMI/RFI:	FCC Title 47 CFR, Part 18, Class B (Consumer)
Sound Rating:	Class A standards
Input Voltage:	UNV (90V - 305V)
Power Factor:	>0.90 (at nominal input 120/230/240/277 VAC & 100% of Rated Output Power)
Input Frequency:	47-63 Hz
THD:	<21%
Rated Wattage:	24.8W
Input Power:	24.8W
Input Current at 120V:	207mA
Input Current at 277V:	90mA
Maximum Non-IC Ambient Continuous Operating Temperature 40°C (104°F)	

**1200 Series
Summary Lighting Data:**

Lumen range:	862-1541
Lumens per watt: up to 62
Rated Watts: 24.8

Color
Correlated Color Temperature (CCT): 2700-4000K
Color Rendering Index (CRI, Ra): 80



Qualified & Compliant with designated LED modules and trims.



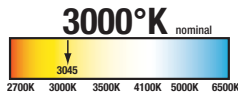
ADV100082
rev 3/19/10

Correlated Color Temperature

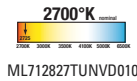
ENERGY STAR® SSL
Nominal CCT

LED Module

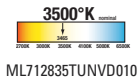
Also Available



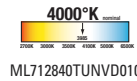
ML712830TUNVD010



ML712827TUNVD010



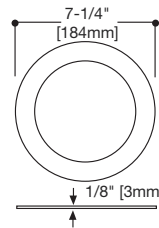
ML712835TUNVD010



ML712840TUNVD010

TRM490 Thin Profile Trim Ring (Optional Accessory)

- Die-cast trim ring
- Thin trim ring provides a more subtle ceiling appearance
- Purchase as accessory and discard ring supplied with trim
- Trim ring height of .120" at OD and .180" at ID
 - TRM490BK = Black
 - TRM490SN = Satin Nickel
 - TRM490WH = White
 - TRM490PC = Polished Chrome
 - TRM490TBZ = Tuscan Bronze

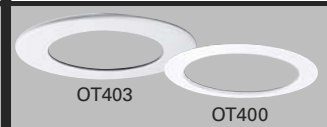


TRM490
Optional Accessory
Thin Profile Trim Ring

Oversize Trim Rings

For use when ceiling opening is irregular or cut too large. The oversized trim ring is installed behind the Halo LED trim ring to mask irregularities or cutout errors of the ceiling opening.

- OT400P = Oversize White Metal Trim Ring 6" ID x 9-1/4" OD
- OT403P = Oversize White Plastic Trim Ring 6" ID x 8" OD



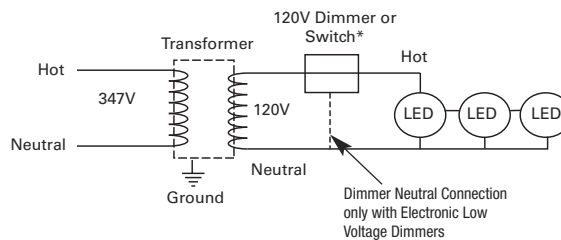
OT400, OT403
Oversize Trim Rings

Application Note

H347 are step-down transformers qualified to drive multiple Halo LED modules on a single circuit in Non-IC construction. Installation of these transformers on individual fixtures on circuits with multiple LED loads is not recommended.

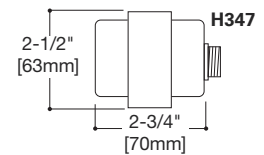
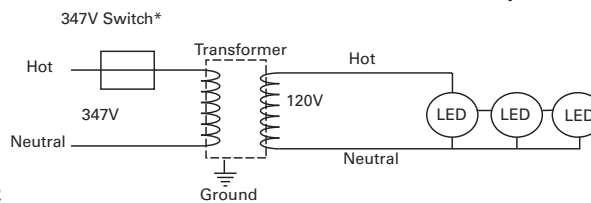
H347 is 75VA qualified to drive up to 2 Halo LED ML712x modules. Installation of individual H347 transformers on each LED downlight fixture in a circuit containing multiple LED modules is not recommended due to resulting multiple inductive currents pulled by each transformer; in this situation the majority of the power would be reactive (VARs) and not real (WATTS). If H347 transformers should be used individually on each LED fixture in a multiple LED circuit, then that circuit should be sized for lowered power factor as well as increased apparent power on the circuit.

Transformer with Dimmer /Switch on Secondary



H347
347V Step Down Transformer,
75VA

Transformer with Dimmer /Switch on Primary



* Dimmer or Switch may be on the Primary OR Secondary side of the transformer.

Step Down Transformer

H347= Transformer - Steps 347 line voltage down to 120 volts. Attaches to knockout on junction box and is 75VA rated (2 - 1200 Series LED modules max.).

H347 is CSA/UL Listed for use under the luminaire UL/cUL listing with non-IC housings (H750T, H750TCP, H7T, H7TNB, H7RT, H750TD010, H750RTD010, H750TCPD010, and LED Module).

(Switch on the primary side as no 347V dimmers currently available.)

Transformer Load - H347 (75VA)

1. H347 Transformer at full loading consumes a maximum of 15W of power
2. When dimmer or switch is on the secondary (120V) side of the transformer, power is consumed by the transformer when the dimmer or switch is in "OFF" mode at 2.5W and in "ON" mode at 15W maximum with full loading.
3. When a switch is on the primary (347V) side of the transformer, power is consumed only in "ON" mode to a maximum of 15W under full loading.

Protected / Non-insulated Soffits, Porches, and Canopies

Halo LED ML7128xxTUNVD010 LED modules when used with Non-IC recessed housings in Non-Insulated protected soffits, porches or canopies offers a solution for outdoor accent lighting. Halo LED is rated for operation from -30°C to 40°C when used with H750TD010, H750RTD010, H750TCPD010, H750T, H750TCP, H7T, H7TNB, H7RT, ET700, ET700R Non-IC housings.

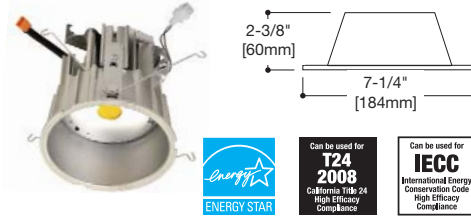
DESCRIPTION: LED Trims

ML712830TUNVD010

Multiple reflector and baffle options allow the Halo LED recessed luminaire to be used in many interior spaces. Choose the best reflector finish and trim for the interior space. Aesthetically pleasing regressed shower trim are available for applications requiring wet location listings.

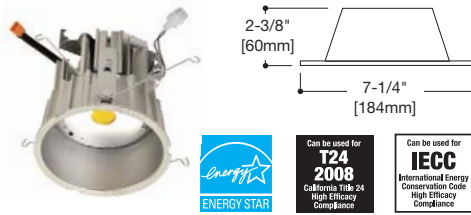
494P06 White Reflector with White Trim Ring

- Halo matte white finish die-cast trim ring
- Halo matte white aluminum reflector
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



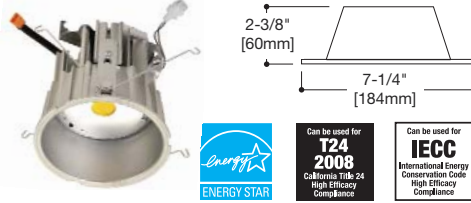
494SC06 Specular Reflector with White Trim Ring

- Halo matte white finish die-cast trim ring
- Specular Clear aluminum reflector
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



494H06 Haze Reflector with White Trim Ring

- Halo matte white finish die-cast trim ring
- Haze aluminum reflector
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



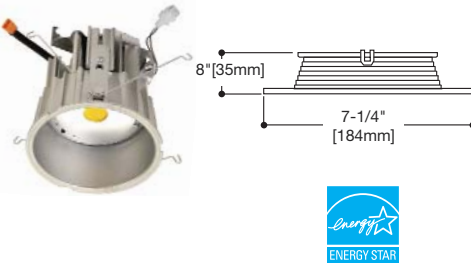
494WB06 White Baffle with White Trim Ring

- Halo matte white finish die-cast trim ring
- Halo Matte White die-cast baffle
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



492PS06 Lensed Trim with White Baffle and Trim Ring

- Halo Matte White trim ring and baffle, regressed lens
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum baffle and die-cast trim ring
- Frosted glass lens
- Trim height of .160" at OD & .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



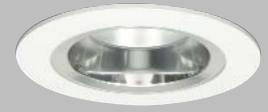
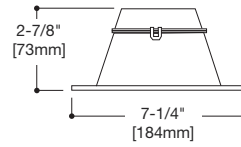
493WBS06 Solite® Regressed Lens with White Baffle and White Trim Ring

- Halo matte white trim ring and baffle with Anti-Microbial finish standard
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum baffle and trim ring
- Trim height of .160" at OD & .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



493SC06 Solite® Regressed Lens with Specular Clear Reflector and White Trim Ring

- Halo matte white trim ring with specular clear reflector
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum reflector and trim ring
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal

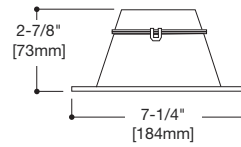


493SC06
Regressed Solite® Lensed
Specular Reflector
with White Trim Ring



493HS06 Solite® Regressed Lens with Haze Reflector and White Trim Ring

- Halo matte white trim ring with Haze reflector
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum reflector and trim ring
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal

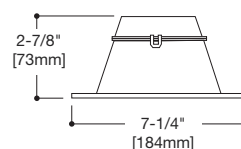


493HS06
Regressed Solite® Lensed
Haze Reflector
with White Trim Ring



493SNS06 Solite® Regressed Lens with Satin Nickel Reflector and Satin Nickel Trim Ring

- Halo Satin Nickel trim ring with Satin Nickel reflector
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum reflector and trim ring
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal

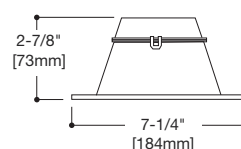


493SNS06
Regressed Solite® Lensed
Satin Nickel Reflector
with Satin Nickel
Trim Ring



493TBZS06 Solite® Regressed Lens with Tuscan Bronze Reflector and Tuscan Bronze Trim Ring

- Halo Tuscan Bronze trim ring with Tuscan Bronze reflector
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum reflector and trim ring
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal

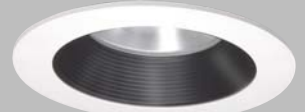
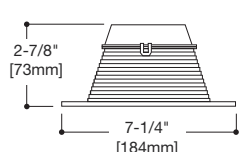


493TBZS06
Regressed Solite® Lensed
Tuscan Bronze Reflector
with Tuscan Bronze
Trim Ring



493BBS06 Solite® Regressed Lens with Black Baffle and White trim Ring

- Halo matte white trim ring with Black Baffle
- Upper specular aluminum reflector for optical control and enhanced lumen delivery
- Wet location listed for use in showers and protected canopy applications
- Die-cast aluminum baffle and trim ring
- Trim ring height of .160" at OD and .180" at ID
- Provides clearance for remodeler flange and gasket for AIR-TITE™ seal



493BBS06
Regressed Solite® Lensed
Black Baffle with
White Trim Ring



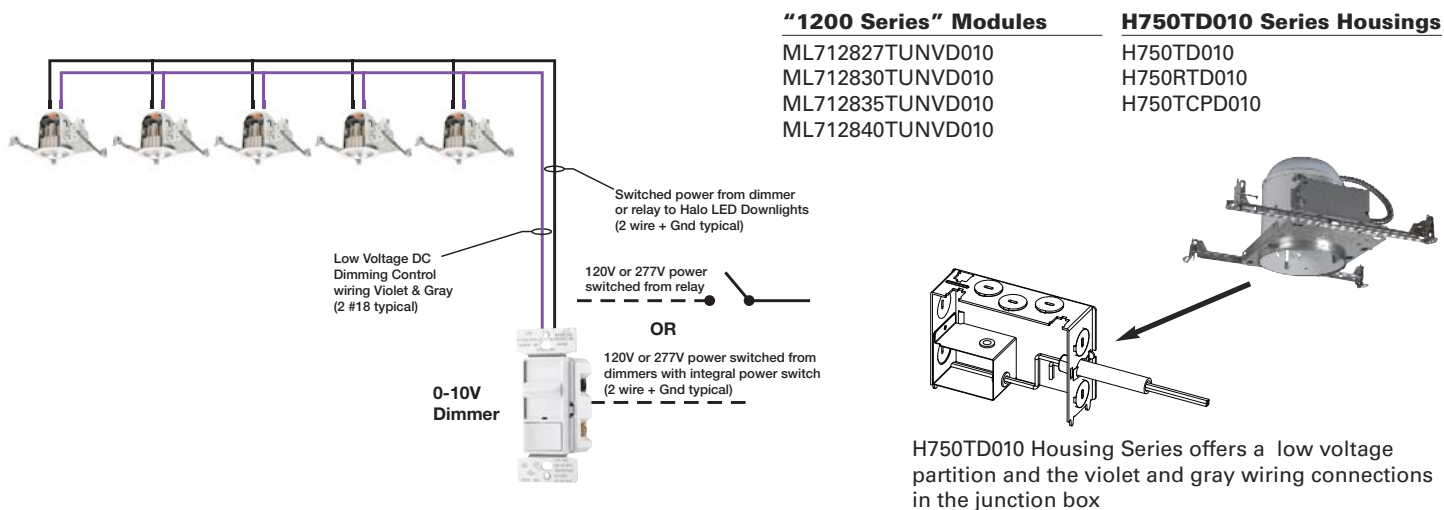
HALO LED 1200 Series Dimming Features

Halo LED ML7128xxTUNV010 Series modules with 0-10V dimming control

0-10VDC low voltage dimming is offered for the 1200 Series LED. This is a common type of dimming for many commercial applications, and the 1200 Series LED modules are rated for and may also be used in residential applications. Note that 1200 Series LED modules are designed and UL listed for NON-IC housings in NON-Insulated ceilings. The H750TD010 series of Non-IC housings were designed specifically for use with the 1200 Series LED Modules to provide the low voltage wiring connections in the junction box of the housing. In many installations code requires the contractor must separate the low and line voltage wiring in the junction box. With the H750TD010 series housings the low voltage connections are partitioned from the line voltage. This special partition saves the contractor time and expense of installing a code required barrier in the junction box.

Low Voltage Dimming - 1200 Series LED

1200 Series LED Modules use drivers that are compatible with 0-10V DC low voltage dimmers. 0-10V DC dimmers are quite commonly used with 0-10V fluorescent dimming ballasts such as Mark-7®, Quicktronic Helios™ or TVE™ that operate using two low voltage dimming wires that are separate from the 120V AC or 277V AC power. Switching on/off is controlled via the line voltage power (120V AC or 277V AC) input to the dimmer and then dimming operation is controlled with the 0-10V DC low voltage wiring connection between the dimmer and the LED driver. The control signal runs on two low voltage control wires (color coded violet and gray). The 0-10V dimmer operates on a “sinking” control signal where the dimmer uses a different level of the control voltage to set the desired dimming level.



Dimmer Matrix

0-10V DC Low Voltage Dimmers

Lutron

Nova-T [☆] ®	NTFTV- and PP-20 relay
Nova®	NFTV- and PP-20 relay
Radio Touch®	RTA-RX-F-347 RTA-RX-F-347 RTA-WX- RTA-TX-
Grafik Eye®	QS QSG-P120 GRX-IT

Leviton

IllumaTech™	IP710-DL
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Hunt

PS-010

Application Notes

1. LED Dimming performance may vary from incandescent and fluorescent dimming. Performance results may vary based upon dimmer model, manufacturer, circuit wiring and circuit loading.
2. Consult dimmer manufacturer for the latest dimmer information, line voltage rating and compatibility.
3. Dimmer maximum load rating with LED may differ from published dimmer ratings. Consult dimmer manufacturer for further information
4. There are no warranties of performance or compatibility implied.

Mark-7® is a registered trademark of Phillips Advance; Helios™ is a registered trademark of Osram Sylvania, Inc.; TVE™, Nova-T[☆]®, Nova®, Radio Touch®, Grafik Eye® are registered trademarks of Lutron Electronics Co., Inc.; IllumaTech™ is a registered trademark of Leviton Manufacturing Co., Inc.

ORDERING INFORMATION

SAMPLE NUMBER: ML712830TUNVD010 494P06

Order LED Module and trim separately

1200 Series LED Module				Trim Options	Accessories (see product details for application information)
ML712	8	30	TUNVD010		
ML712 = 6" LED Module 1200 Series LED	8 =80 CRI	27 =2725°K 30 =3045°K 35 =3465°K 40 =3985°K	TUNVD010 = Non-IC, 120V-277V UNV Module with 0-10V DC dimming	494P06 =Matte White Reflector/ white die cast trim ring. 494WB06 =White Baffle/ white die cast trim ring. 494H06 =Haze Reflector/ white die cast trim ring. 494SC06 =Specular Reflector/ white die cast trim ring. 492PS06 =Regressed Lens, white die-cast baffle and trim ring. Shower rated. 493WBS06 =Solite® Regressed Lens, upper reflector, White die-cast baffle and White die-cast trim ring with anti-microbial paint (standard). Shower Rated. 493SCS06 =Solite® Regressed Lens, upper reflector, Specular Clear die-cast reflector and die-cast white trim ring. Shower Rated. 493HS06 =Solite® Regressed Lens, upper reflector, Haze die-cast reflector, and white die-cast trim ring. Shower Rated. 493SNS06 =Solite® regressed Lens, upper reflector, Satin Nickel die cast reflector and Satin Nickel die-cast trim ring. Shower Rated. 493TBZ06 =Solite® Regressed Lens, upper reflector, Tuscan Bronze die-cast reflector and Tuscan Bronze die-cast trim ring. Shower Rated. 493BBS06 =Solite® Regressed Lens, Black die-cast baffle with die-cast white trim ring. Shower Rated.	OT400P =Oversize White Metal Trim Ring 6" ID x 9-1/4" OD OT403P =Oversize White Plastic Trim Ring 6" ID x 8" OD H347 = 75VA Transformer - Steps 347V line voltage down to 120V (see App. Note) Thin Profile Trim Rings: TRM490WH =Thin Profile matte white die-cast trim ring TRM490SN =Thin Profile Satin Nickel die-cast trim ring TRM490TBZ =Thin Profile Tuscan Bronze die-cast trim ring TRM490BK =Thin Profile Black die-cast trim ring TRM490PC =Thin Profile Polished Chrome die-cast trim ring

3 YEAR PRODUCT LIMITED WARRANTY

Cooper Lighting (The Company) warrants the HALO ML7128xxTUNVD010 LED Module, HALO H750Tx Series housings and HALO LED trims against defects in material or workmanship for a period of three years from date of original purchase, and agrees to repair or, at the company's option, replace a defective product without charge for either replacement parts or labor during such time. This does not include labor to remove or install fixtures. If used in recessed housings other than Halo or ALL-Pro, the Cooper Lighting 3-year warranty applies to the LED Module and trim only.

This warranty is extended only to the original purchaser of the product. A purchaser's receipt or other proof of date of original purchase acceptable to the Company is required before warranty performance shall be rendered.

This warranty only covers product failure due to defects in materials or workmanship which occurs in normal use. It does not cover the failure of product caused by accident, misuse, abuse, lack of reasonable care, alteration, or faulty installation, subjecting the product to any but the specified electrical service or any other failure not resulting from defects in materials

or workmanship. Damage to the product caused by separately purchased, non-Company supplied components and corrosion or discoloration of components are not covered by this warranty. There are no express warranties except as described above.

THE COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THIS EXPRESS WARRANTY. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

No other warranty, written or verbal, is authorized by the Company. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

To obtain warranty service, please write to Cooper Lighting, 1121 Highway 74 South, Peachtree City, Georgia 30269. Enclose product model number and problems you are experiencing, along with address and telephone number. You will then be contacted with a solution or a Return Goods Authorization number and full instructions for returning the product. All returned products must be accompanied by a Return Goods Authorization Number issued by the Company and must be returned freight prepaid. Any product received without a Return Goods Authorization Number from the Company will be refused.

Cooper Lighting is not responsible for merchandise damaged in transit. Repaired or replaced products shall be subject to the terms of this warranty and are inspected when packed. Evident or concealed damage that is made in transit should be reported at once to the carrier making the delivery and a claim filed with them.

Solite® is a registered trademark of AGC Flat Glass North America