

Description

The ML56 LED downlight system is a flexible solution for your recessed lighting needs. High color fidelity 90 CRI modules are available in three lumen outputs and four color temperatures and because they are compatible with Halo LED housing and many other existing screw based housings, the ML56 LED system can be used in remodel, retrofit and new construction installations. An optional dim-to-warm (D2W™) feature creates an additional lighting solution as it provides a smooth warm transition from 3000K to 1850K when dimmed.

| | | |
|-------------|--|------|
| Catalog # | | Type |
| Project | | |
| Comments | | Date |
| Prepared by | | |

Specification Features

Mechanical

Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

Mounting

- Modules attach to reflector and baffle trims via locking tabs, and attach to eyeballs via keyed twist-to-lock mating bosses
- The complete module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series). For eyeball trim (694 series) use ML7RAB retrofit adapter band.

Housing Compatibility

A complete ML56 system includes a LED Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.
- Color Temperature options: 2700K, 3000K, 3500K, 4000K
- Dim-to-warm (D2W) Option: 3000K, shifts to 1850K as it DIMS CRI>90 throughout dimming range

- CRI: 90, R9>50
- L70 at 50,000 hours, projected in accordance with IES TM-21

Color Specification & Quality Standards

- A tight chromaticity specification ensures LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM exceeds ENERGY STAR® color standards per ANSI C78.377-2008.
- High color performance which maintains 90CRI and R9>50 throughout dimming range.
- Every Halo Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- ML56 LED Modules include lumen, CRI, and CCT in the model number
- Example: **ML5609930**
56 = 5" / 6" aperture series
09 = 900 lumen series
9 = >90 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector is a non-screw base, and where required to qualify as a high-efficacy luminaire.
- The included E26 medium screw-base Edison adapter provides easy retrofit of incandescent housings (see Housing Section).

Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers. (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

Warranty

Eaton provides a (5) five year limited warranty on the Halo ML56 LED Module.

LED Module in New or Retrofit Existing Construction – Housings other than Halo

- If used in recessed housings other than Halo the Eaton 5-year limited 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 properly and securely retain the LED Module and LED Trim in the housing at time of installation.



ML56 LED System

900 Series / 90 CRI

- ML5609927
- ML5609930
- ML5609D2W930
- ML5609935
- ML5609940

5-Inch and 6-Inch 900 Lumen LED

Module for New Construction, Remodel and Retrofit

For use with 59x and 69x Series Trims

FOR USE IN INSULATED CEILING AND NON-INSULATED CEILING RATED HOUSINGS

HIGH EFFICACY LED WITH INTEGRAL DRIVER - DIMMABLE



ML5609927
5" or 6" LED 900 Series



ML5609930
5" or 6" LED 900 Series



ML5609D2W930
5" or 6" LED 900 Series,
dim-to-warm



ML5609935
5" or 6" LED 900 Series



ML5609940
5" or 6" LED 900 Series

Compliance

- cULus listed 1598 Luminaire (Halo housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used for California Title 24 compliance / Title 20 certified
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européene" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

* Not for use with housings in direct contact with spray foam insulation.

Energy Data

ML56 900/90 Series

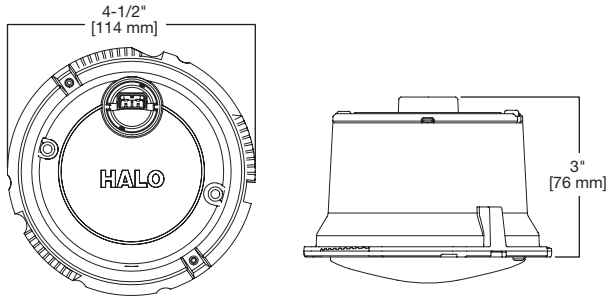
| |
|--|
| (Values at non-dimming line voltage) |
| Minimum Starting Temp: -30°C (-22°F) |
| EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer) |
| Sound Rating: Class A |
| Input Voltage: UNV 120V-277V |
| Power Factor: >0.95 @ 120V and >0.9 @277V |
| Input Frequency: 50/60Hz |
| THD: <20% |
| Max. Rated Wattage: 14W |
| Input Power: 13.4W |
| Input Current at 120V: 0.15A |
| Input Current at 277V: 0.08A |
| Driver Compliance: UL8750, Class II rated |
| Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F) |
| Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F) |



Refer to ENERGY STAR® Certified Products List.
 Can be used to comply with California Title 24 High Efficacy requirements.
 Certified to California Title 20 Appliance Efficiency Database.



Dimensions



Ordering Information

Sample Number: **ML5609930 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Modules 900 Series / 90 CRI

ML5609927= 5"/6" LED module, 900 lumen, 90CRI, 2700K
ML5609930= 5"/6" LED module, 900 lumen, 90CRI, 3000K
ML5609935= 5"/6" LED module, 900 lumen, 90CRI, 3500K
ML5609940= 5"/6" LED module, 900 lumen, 90CRI, 4000K
ML5609D2W930= 5"/6" dim-to-warm LED module, 900 lumen, 90CRI, 3000K to 1850K

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

591WB=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
592SC=5" LED trim, specular reflector & white flange
592H=5" LED trim, haze reflector & white flange
592W=5" LED trim, white reflector & flange
593WB=5" LED trim, white micro-step baffle & flange
593BB=5" LED trim, black micro-step baffle & white flange
593SNB=5" LED trim, satin nickel micro-step baffle & flange
593TBZB=5" LED trim, tuscan bronze micro-step baffle & flange
594WB=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
594SNB=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
594TBZB=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
595WW=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
596WB=5" LED trim, white shallow baffle & flange – shallow and standard housings

690 Series - 6" LED Trims

691WB=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
692SC=6" LED trim, specular reflector & white flange
692H=6" LED trim, haze reflector & white flange
692W=6" LED trim, white reflector & flange
693WB=6" LED trim, white micro-step baffle & flange
693BB=6" LED trim, black micro-step baffle & white flange
693SNB=6" LED trim, satin nickel micro-step baffle & flange
693TBZB=6" LED trim, tuscan bronze micro-step baffle & flange
694WB=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
694SNB=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
694TBZB=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
695WW=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
696WB=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

ML56 System Accessories

ML56CLIP=Friction clip mounting kit - For retrofitting non-torsion spring housings, 6" clips*
WW595SC=5" Wall wash insert - kick reflector for 595WW (1-included with trim) double or corner wall wash**
WW695SC=6" Wall wash insert - kick reflector for 695WW (1-included with trim) double or corner wall wash**
TRM590WH=5" LED oversize trim ring for use with 59" series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface
TRM690WH=6" LED oversize trim ring for use with 69" series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adapter band.

**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

ML5609927

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 739 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 55.1 |
| Color Accuracy (CRI) | 92 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 2700K |
| | |
| MODEL# ML5609927 | |

ML5609930

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 842 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 62.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3000K |
| | |
| MODEL# ML5609930 | |

ML5609D2W930

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 842 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 62.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3000K |
| | |
| MODEL# ML5609930 | |

ML5609935

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 872 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 65.1 |
| Color Accuracy (CRI) | 94 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3500K |
| | |
| MODEL# ML5609935 | |

ML5609940

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 922 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 68.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 4000K |
| | |
| MODEL# ML5609940 | |

Housing – Trim Compatibility

Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

The ML56 LED module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in³ in addition to those noted below.

Halo UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

| Brand | Housing Type | Catalog Number | Description |
|-------|-------------------|----------------|--|
| Halo | Standard Housings | H750ICAT | 6" LED, Insulated Ceiling, Air-Tite, New Construction Housing |
| | | H750RICAT | 6" LED, Insulated Ceiling, Air-Tite, Remodel Housing |
| | | H750T | 6" LED, Non-IC, Air-Tite, New Construction Housing |
| | | H750TCP | 6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing |
| Halo | Shallow Housings | H2750ICAT | 6" LED, Shallow, Insulated Ceiling, Air-Tite, New Constr. (use with 691X, 694X, 696X trims only) |
| | | H2750RICAT | 6" LED, Shallow, Insulated Ceiling, Air-Tite, Remodel (use with 691X, 694X, 696X trims only) |

HALO - Incandescent E26 Screwbase Housings

| Brand | Housing Type | Catalog Number | Description |
|----------|--|----------------|--|
| Halo | Standard Housings | H7ICAT | 6" Insulated Ceiling, Air-Tite New Construction Housing |
| | | H7RICAT | 6" Insulated Ceiling, Air-Tite Remodel Housing |
| | | H7ICT | 6" Insulated Ceiling, New Construction Housing |
| | | H7RICT | 6" Insulated Ceiling, Remodel Housing |
| | | H7ICATNB | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket |
| | | H7ICTNB | 6" Insulated Ceiling, New Construction Housing, No Socket Bracket |
| | | H7T | 6" Non-IC, New Construction Housing |
| | | H7RT | 6" Non-IC, Remodel Housing |
| | | H7TNB | 6" Non-IC, New Construction Housing, No Socket Bracket |
| | | H7TCP | 6" Non-IC, Chicago Plenum, New Construction/Remodel Housing |
| | | H7UICAT | 6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing |
| | | E7ICAT | 6" IC, Air-Tite, New Construction Housing, 120V |
| | | E7ICATNB | 6" IC, AIRTITE, New Construction, No Socket Bracket Housing, 120V |
| | | E7TAT | 6" Non-IC, Air-Tite, New Construction Housing, 120V |
| | | E7TATNB | 6" Non-IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V |
| | | E27ICAT | 6" IC, Air-Tite, Shallow New Construction Housing, 120V |
| | | E27TAT | 6" Non-IC, Air-Tite, Shallow New Construction Housing, 120V |
| | | E7RICAT | 6" IC, Air-Tite, Remodel Housing, 120V |
| | | E7RTAT | 6" Non-IC, Air-Tite, Remodel Housing, 120V |
| | | Halo | Shallow Housings |
| H27RICAT | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| H27ICT | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only) | | |
| H27RICT | 6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| H27T | 6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only) | | |
| H27RT | 6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| E27RICAT | 6" IC, Air-Tite, Shallow Remodel Housing, 120V | | |
| E27RTAT | 6" Non-IC, Air-Tite, Shallow Remodel Housing, 120V | | |

Halo LED Retrofit Enclosures

| Brand | Type | Catalog Number | Description |
|-------|----------|----------------|---|
| Halo | Retrofit | ML7BXRFK | 6" Retrofit Enclosure, Non-IC, BX Whip |
| | | ML7E26RFK | 6" Retrofit Enclosure, Non-IC, E26 Screw base Interface |

Housing Compatibility

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

(Note shallow housings for use with 591X, 594X, 596X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

| Brand | Housing Type | Catalog Number | Description |
|-------|-------------------|----------------|---|
| Halo | Standard Housings | H550ICAT | 5" LED, Insulated Ceiling, Air-Tite, New Construction Housing |
| | | H550RICAT | 5" LED, Insulated Ceiling, Air-Tite, Remodel Housing |

HALO - Incandescent E26 Screwbase Housings

| Brand | Housing Type | Catalog Number | Description | | |
|-------|-------------------|----------------|--|-----------|---|
| Halo | Standard Housings | H5ICAT | 5" Insulated Ceiling, Air-Tite New Construction Housing | | |
| | | H5RICAT | 5" Insulated Ceiling, Air-Tite Remodel Housing | | |
| | | H5ICATNB | 5" IC, Air-Tite New Construction, No Socket Bracket Housing, 120V | | |
| | | H5T | 5" Non-IC, New Construction Housing | | |
| | | H5RT | 5" Non-IC, Remodel Housing | | |
| | | H5TNB | 5" Non-IC, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5ICAT | 5" IC, Air-Tite, New Construction Housing, 120V | | |
| | | E5ICATNB | 5" IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5TAT | 5" Non-IC, Air-Tite, New Construction Housing, 120V | | |
| | | E5TATNB | 5" Non-IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5RICAT | 5" IC, Air-Tite, Remodel Housing, 120V | | |
| | | E5RTAT | 5" Non-IC, Air-Tite, Remodel Housing, 120V | | |
| | | Halo | Shallow Housings | H25ICAT | 5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only) |
| | | | | H25ICATNB | 5" IC, Air-Tite Shallow, New Const., No Socket Bracket Housing, 120V |

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

| Brand | Housing Type | Catalog Number |
|---------------------|-------------------|--|
| Juno | Standard Housings | IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2 |
| | Shallow Housing | IC21, IC21R (use with 691X, 694X, 696X trims only) |
| Capri | Standard Housings | CR1, PR1, QL1 |
| | Shallow Housing | R9ASIC/PS9RM (use with 691X, 694X, 696X trims only) |
| Elco | | HL7ICA (EL7ICA) |
| Lithonia | Standard Housings | LC6, L7X |
| | Shallow Housing | L7XP (use with 691X, 694X, 696X trims only) |
| Thomas | | PS1 |
| Commercial Electric | | C7ICA, H3 |
| Progress | Standard Housings | P87-AT † * |
| | Shallow Housing | P86TG (use with 691X, 694X, 696X trims only) |
| Lightolier | | 1104ICS †*, 1104ICR †* |

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

* ML56CLIP is compatible with only baffle and reflector trims

5" Trims: 591X, 596X

| Brand | Housing Type | Catalog Number |
|-------|-------------------|--------------------------|
| Juno | Standard Housings | IC20, IC25S, IC25W, TC20 |

ML56 900 Series Compliance Table

90 CRI LED Modules with ML56 Trims

| | ML5609927 | ML5609930 | ML5609D2W930 | ML5609935 | ML5609940 |
|----------|---------------|---------------|---------------|---------------|---------------|
| 593BB | IECC | IECC | IECC | IECC | T24, IECC |
| 693BB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593TBZB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693TBZB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593SNB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592H | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592W | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 595WW | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592SC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692H | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 695WW | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692SC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 596WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692W | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594TBZB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694TBZB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 696WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594WB-30 | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694WB-30 | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24 = Can be used to comply with California Title 24 High Efficacy requirements. Certified to California Title 20 Appliance Efficiency Database.

IECC = International Energy Conservation Code "High Efficacy"

ML56 900 Series Lumen Table

90 CRI LED Modules with ML56 trims

| | Trim Catalog # | ML5609927 | | ML5609930 | | ML5609D2W930 | | ML5609935 | | ML5609940 | |
|----------------|----------------|-----------|-------|-----------|--------|--------------|-------|-----------|--------|-----------|------|
| | | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW |
| 0° Tilt Angle | 593BB | 477.0 | 35.6 | 543.5 | 40.6 | 689.7 | 53.9 | 562.8 | 42.0 | 595.1 | 44.4 |
| | 693BB | 535.0 | 39.9 | 609.6 | 45.5 | 763.4 | 59.7 | 631.3 | 47.1 | 667.5 | 49.8 |
| | 593TBZB | 543.0 | 40.5 | 618.7 | 46.2 | 774.0 | 60.5 | 640.7 | 47.8 | 677.5 | 50.6 |
| | 693TBZB | 565.0 | 42.2 | 643.7 | 48.0 | 802.0 | 62.7 | 666.7 | 49.8 | 704.9 | 52.6 |
| | 593SNB | 599.0 | 44.7 | 682.5 | 50.9 | 858.2 | 67.1 | 706.8 | 52.7 | 747.3 | 55.8 |
| | 693SNB | 625.0 | 46.6 | 712.1 | 53.1 | 886.3 | 69.3 | 737.5 | 55.0 | 779.8 | 58.2 |
| | 592H | 670.0 | 50.0 | 763.4 | 57.0 | 967.0 | 75.6 | 790.6 | 59.0 | 835.9 | 62.4 |
| | 593WB | 702.0 | 52.4 | 799.8 | 59.7 | 996.8 | 77.9 | 828.3 | 61.8 | 875.8 | 65.4 |
| | 592W | 708.0 | 52.8 | 806.7 | 60.2 | 1014.4 | 79.3 | 835.4 | 62.3 | 883.3 | 65.9 |
| | 595WW | 725.0 | 54.1 | 826.0 | 61.6 | 1021.4 | 79.9 | 855.5 | 63.8 | 904.5 | 67.5 |
| | 592SC | 726.0 | 54.2 | 827.2 | 61.7 | 1024.9 | 80.1 | 856.7 | 63.9 | 905.8 | 67.6 |
| | 692H | 729.0 | 54.4 | 830.6 | 62.0 | 1028.4 | 80.4 | 860.2 | 64.2 | 909.5 | 67.9 |
| | 695WW | 730.0 | 54.5 | 831.7 | 62.1 | 1030.2 | 80.5 | 861.4 | 64.3 | 910.8 | 68.0 |
| | 693WB | 739.0 | 55.1 | 842.0 | 62.8 | 1046.0 | 81.8 | 872.0 | 65.1 | 922.0 | 68.8 |
| | 692SC | 749.0 | 55.9 | 853.4 | 63.7 | 1046.0 | 81.8 | 883.8 | 66.0 | 934.5 | 69.7 |
| | 596WB | 749.0 | 55.9 | 853.4 | 63.7 | 1049.5 | 82.1 | 883.8 | 66.0 | 934.5 | 69.7 |
| | 692W | 750.0 | 56.0 | 854.5 | 63.8 | 1068.8 | 83.6 | 885.0 | 66.0 | 935.7 | 69.8 |
| | 594TBZB | 755.0 | 56.3 | 860.2 | 64.2 | 1077.6 | 84.3 | 890.9 | 66.5 | 942.0 | 70.3 |
| | 694TBZB | 759.0 | 56.6 | 864.8 | 64.5 | 1079.3 | 84.4 | 895.6 | 66.8 | 947.0 | 70.7 |
| | 594SNB | 759.0 | 56.6 | 864.8 | 64.5 | 1086.3 | 84.9 | 895.6 | 66.8 | 947.0 | 70.7 |
| 696WB | 772.0 | 57.6 | 879.6 | 65.6 | 1100.4 | 86.0 | 910.9 | 68.0 | 963.2 | 71.9 | |
| 694SNB | 773.0 | 57.7 | 880.7 | 65.7 | 1103.9 | 86.3 | 912.1 | 68.1 | 964.4 | 72.0 | |
| 694WB | 805.0 | 60.1 | 917.2 | 68.4 | 1137.2 | 88.9 | 949.9 | 70.9 | 1004.3 | 75.0 | |
| 594WB | 806.0 | 60.1 | 918.3 | 68.5 | 1140.7 | 89.2 | 951.1 | 71.0 | 1005.6 | 75.0 | |
| 30° Tilt Angle | 594WB-30 | 781.0 | 58.3 | 889.9 | 66.4 | 1105.6 | 86.4 | 921.6 | 68.8 | 974.4 | 72.7 |
| | 694WB-30 | 759.0 | 56.6 | 864.8 | 64.5 | 1056.5 | 82.6 | 895.6 | 66.8 | 947.0 | 70.7 |

Photometry 5" Trims • 900 Series • 90 CRI

Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.88 | 1.00 | 1.04 | 1.10 |

Table based upon testing with 3000°K color temperature, 90CRI.

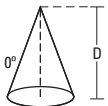
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-592SC

| | |
|--------------|----------------------------------|
| Test Number | P130008 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Specular Clear Trim |
| Lumens | 827 |
| Efficacy | 61.7 Lm/W |
| SC | 1.06 |

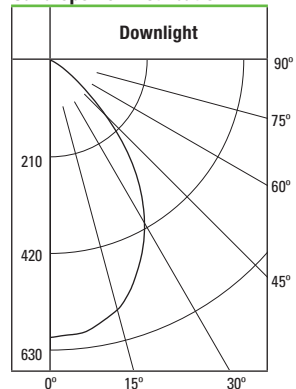


Cone of Light



| D | FC | L | W |
|-----|------|------|------|
| 5.5 | 19.9 | 5.8 | 5.8 |
| 7 | 12.3 | 7.2 | 7.2 |
| 8 | 9.4 | 8.4 | 8.4 |
| 9 | 7.4 | 9.4 | 9.4 |
| 10 | 6 | 10.4 | 10.4 |
| 12 | 4.2 | 12.6 | 12.6 |

Candlepower Distribution

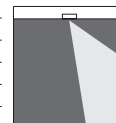


Zonal Lumen Summary

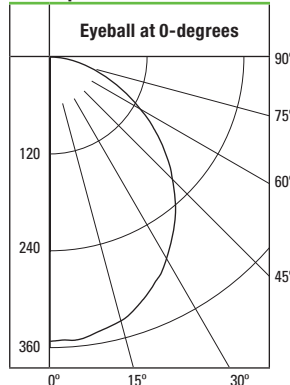
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 428 | 51.8 |
| 0-40 | 639 | 77.2 |
| 0-60 | 817 | 98.8 |
| 0-90 | 827 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 827 | 100 |

ML5609930-594WB

| | |
|--------------|----------------------------------|
| Test Number | P130064 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Directional Eyeball |
| Lumens | 918 |
| Efficacy | 68.5 Lm/W |
| SC | 1.22 |

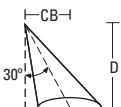


Candlepower Distribution



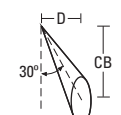
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|------|------|------|-----|
| 5.5 | 10.3 | 6.6 | 6.6 | 3.2 |
| 7 | 6.3 | 8.3 | 8.6 | 4 |
| 8 | 4.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3.8 | 10.7 | 11 | 5.2 |
| 10 | 3.1 | 11.9 | 12.2 | 5.8 |
| 12 | 2.2 | 14.3 | 14.6 | 6.9 |



30° Vertical Plane

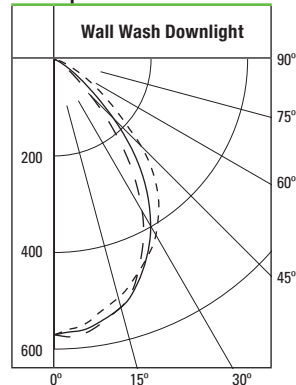
| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 200.5 | 1.1 | 1.2 | 1.7 |
| 2' | 50.1 | 2.2 | 2.6 | 3.5 |
| 3' | 22.3 | 3.3 | 3.8 | 5.2 |
| 4' | 12.5 | 4.5 | 5.2 | 6.9 |
| 5' | 8 | 5.6 | 6.6 | 8.7 |
| 6' | 5.6 | 6.7 | 7.8 | 10.4 |



Zonal Lumen Summary

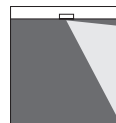
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 271 | 29.5 |
| 0-40 | 437 | 47.6 |
| 0-60 | 744 | 81 |
| 0-90 | 918 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 918 | 100 |

Candlepower Distribution



ML5609930-595WW

| | |
|--------------|---|
| Test Number | P130088 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 826 |
| Efficacy | 61.6 Lm/W |
| SC | 1.06 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 406 | 49.1 |
| 0-40 | 611 | 73.9 |
| 0-60 | 804 | 97.4 |
| 0-90 | 826 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 826 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | ● | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|------|------|-----|-----|-----|-----|-----|
| 1' | 3.4 | 2.2 | 0.8 | 0.2 | 0.1 | 0 | 0 |
| 2' | 11.8 | 8.6 | 3.7 | 1.1 | 0.3 | 0.1 | 0 |
| 3' | 13.7 | 11.4 | 6.1 | 2.4 | 0.9 | 0.3 | 0.1 |
| 4' | 9.6 | 8.7 | 6.2 | 3.3 | 1.5 | 0.6 | 0.3 |
| 5' | 6.4 | 6 | 4.7 | 3.2 | 1.9 | 0.9 | 0.4 |
| 6' | 4.3 | 4.1 | 3.5 | 2.6 | 1.8 | 1.1 | 0.6 |
| 7' | 3 | 2.9 | 2.5 | 2 | 1.5 | 1.1 | 0.7 |
| 8' | 2.1 | 2.1 | 1.9 | 1.6 | 1.3 | 1 | 0.7 |
| 9' | 1.6 | 1.5 | 1.4 | 1.2 | 1 | 0.8 | 0.6 |
| 10' | 1.2 | 1.2 | 1.1 | 1 | 0.8 | 0.7 | 0.6 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | | --4'-- | | |
|-----|--------|------|------|--------|------|------|
| 1' | 3.6 | 2.8 | 3.6 | 3.4 | 1.6 | 3.4 |
| 2' | 12.8 | 11.6 | 12.8 | 12.1 | 7.3 | 12.1 |
| 3' | 16.1 | 17.5 | 16.1 | 14.6 | 12.3 | 14.6 |
| 4' | 12.9 | 14.8 | 12.9 | 11.1 | 12.3 | 11.1 |
| 5' | 9.5 | 10.6 | 9.5 | 8.2 | 9.5 | 8.2 |
| 6' | 6.9 | 7.5 | 6.9 | 6.1 | 6.9 | 6.1 |
| 7' | 5 | 5.3 | 5 | 4.5 | 5.1 | 4.5 |
| 8' | 3.7 | 3.9 | 3.7 | 3.4 | 3.8 | 3.4 |
| 9' | 2.8 | 2.9 | 2.8 | 2.6 | 2.8 | 2.6 |
| 10' | 2.1 | 2.2 | 2.1 | 2 | 2.2 | 2 |

Legend

| | | |
|----------|-----|------|
| 0-deg: | --- | Wall |
| 90-deg: | --- | Side |
| 180-deg: | --- | Room |

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 6" Trims • 900 Series • 90 CRI

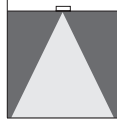
Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.88 | 1.00 | 1.04 | 1.10 |

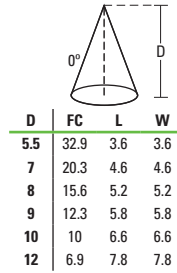
Table based upon testing with 3000°K color temperature, 90CRI.
 Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-692SC

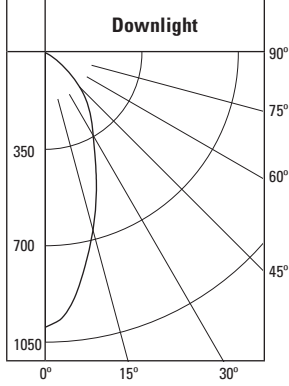
| | |
|--------------|----------------------------------|
| Test Number | P130104 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Specular Clear Trim |
| Lumens | 853 |
| Efficacy | 63.7 Lm/W |
| SC | 0.66 |



Cone of Light



Candlepower Distribution

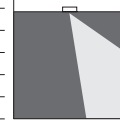


Zonal Lumen Summary

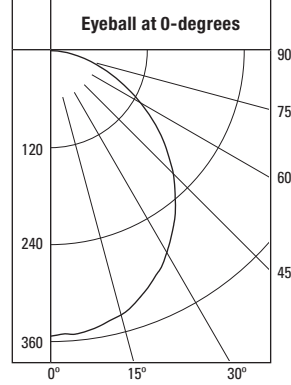
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 469 | 54.9 |
| 0-40 | 649 | 76.1 |
| 0-60 | 842 | 98.7 |
| 0-90 | 853 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 853 | 100 |

ML5609930-694WB

| | |
|--------------|----------------------------------|
| Test Number | P130160 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Directional Eyeball |
| Lumens | 917 |
| Efficacy | 68.4 Lm/W |
| SC | 1.21 |

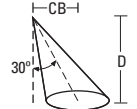


Candlepower Distribution



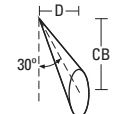
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|------|------|------|-----|
| 5.5 | 10.3 | 6.6 | 6.6 | 3.2 |
| 7 | 6.3 | 8.3 | 8.6 | 4 |
| 8 | 4.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3.8 | 10.7 | 11 | 5.2 |
| 10 | 3.1 | 12 | 12.2 | 5.8 |
| 12 | 2.2 | 14.3 | 14.6 | 6.9 |



30° Vertical Plane

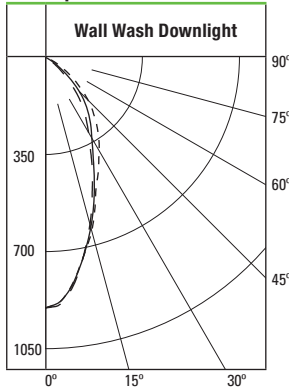
| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 200.5 | 1.1 | 1.2 | 1.7 |
| 2' | 50.1 | 2.2 | 2.6 | 3.5 |
| 3' | 22.3 | 3.3 | 3.8 | 5.2 |
| 4' | 12.5 | 4.5 | 5.2 | 6.9 |
| 5' | 8 | 5.6 | 6.6 | 8.7 |
| 6' | 5.6 | 6.7 | 7.8 | 10.4 |



Zonal Lumen Summary

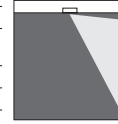
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 271 | 29.5 |
| 0-40 | 437 | 47.6 |
| 0-60 | 744 | 81.1 |
| 0-90 | 917 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 917 | 100 |

Candlepower Distribution



ML5609930-695WW

| | |
|--------------|---|
| Test Number | P130184 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 832 |
| Efficacy | 62.1 Lm/W |
| SC | 0.69 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 445 | 53.5 |
| 0-40 | 622 | 74.8 |
| 0-60 | 813 | 97.7 |
| 0-90 | 832 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 832 | 100 |

Single Unit Footcandles

| DD | ● | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|------|-----|-----|-----|-----|-----|-----|
| 1' | 2.5 | 1.4 | 0.5 | 0.2 | 0 | 0 | 0 |
| 2' | 10.9 | 7.7 | 3.4 | 1.1 | 0.3 | 0.1 | 0 |
| 3' | 11.6 | 9.5 | 5.5 | 2.5 | 0.9 | 0.3 | 0.1 |
| 4' | 8.7 | 7.5 | 5.2 | 3 | 1.5 | 0.6 | 0.3 |
| 5' | 6.2 | 5.5 | 4.1 | 2.8 | 1.7 | 0.9 | 0.4 |
| 6' | 4.4 | 4 | 3.2 | 2.3 | 1.5 | 1 | 0.6 |
| 7' | 3.3 | 3 | 2.5 | 1.9 | 1.3 | 0.9 | 0.6 |
| 8' | 2.5 | 2.3 | 1.9 | 1.5 | 1.1 | 0.8 | 0.6 |
| 9' | 2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.7 | 0.5 |
| 10' | 1.5 | 1.4 | 1.3 | 1 | 0.8 | 0.6 | 0.5 |

Multiple Unit Footcandles

| DD | --3'-- | --4'-- |
|-----|--------|--------|
| 1' | 2.6 | 1.9 |
| 2' | 11.9 | 10.8 |
| 3' | 14.1 | 15.1 |
| 4' | 11.8 | 12.9 |
| 5' | 8.9 | 9.8 |
| 6' | 6.7 | 7.4 |
| 7' | 5.1 | 5.6 |
| 8' | 4 | 4.3 |
| 9' | 3.2 | 3.4 |
| 10' | 2.5 | 2.7 |

Legend
 0-deg: --- Wall
 90-deg: --- Side
 180-deg: --- Room

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Description

The ML56 LED downlight system is a flexible solution for your recessed lighting needs. High color fidelity 90 CRI modules are available in three lumen outputs and four color temperatures and because they are compatible with Halo LED housing and many other existing screw based housings, the ML56 LED system can be used in remodel, retrofit and new construction installations. An optional dim-to-warm (D2W™) feature creates an additional lighting solution as it provides a smooth warm transition from 3000K to 1850K when dimmed.

| | | |
|-------------|--|------|
| Catalog # | | Type |
| Project | | |
| Comments | | Date |
| Prepared by | | |

Specification Features

Mechanical

Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

Mounting

- Modules attach to reflector and baffle trims via locking tabs, and attach to eyeballs via keyed twist-to-lock mating bosses
- The complete module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series). For eyeball trim (694 series) use ML7RAB retrofit adapter band.

Housing Compatibility

A complete ML56 system includes a LED Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.
- Color Temperature options: 2700K, 3000K, 3500K, 4000K
- Dim-to-warm (D2W) Option: 3000K, shifts to 1850K as it DIMS CRI>90 throughout dimming range

- CRI: 90, R9>50
- L70 at 50,000 hours, projected in accordance with IES TM-21

Color Specification & Quality Standards

- A tight chromaticity specification ensures LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM exceeds ENERGY STAR® color standards per ANSI C78.377-2008.
- High color performance which maintains 90CRI and R9>50 throughout dimming range.
- Every Halo Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- ML56 LED Modules include lumen, CRI, and CCT in the model number
- Example: **ML5609930**
56 = 5" / 6" aperture series
09 = 900 lumen series
9 = >90 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector is a non-screw base, and where required to qualify as a high-efficacy luminaire.
- The included E26 medium screw-base Edison adapter provides easy retrofit of incandescent housings (see Housing Section).

Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers. (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

Warranty

Eaton provides a (5) five year limited warranty on the Halo ML56 LED Module.

LED Module in New or Retrofit Existing Construction – Housings other than Halo

- If used in recessed housings other than Halo the Eaton 5-year limited 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 properly and securely retain the LED Module and LED Trim in the housing at time of installation.



ML56 LED System

900 Series / 90 CRI

- ML5609927**
- ML5609930**
- ML5609D2W930**
- ML5609935**
- ML5609940**

**5-Inch and 6-Inch
900 Lumen LED
Module for
New Construction,
Remodel and Retrofit**

**For use with 59x and 69x
Series Trims**

**FOR USE IN
INSULATED CEILING
AND NON-INSULATED
CEILING RATED
HOUSINGS**

**HIGH EFFICACY LED
WITH INTEGRAL
DRIVER - DIMMABLE**



ML5609927
5" or 6" LED 900 Series



ML5609930
5" or 6" LED 900 Series



ML5609D2W930
5" or 6" LED 900 Series,
dim-to-warm



ML5609935
5" or 6" LED 900 Series



ML5609940
5" or 6" LED 900 Series

Compliance

- cULus listed 1598 Luminaire (Halo housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used for California Title 24 compliance / Title 20 certified
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européene" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

* Not for use with housings in direct contact with spray foam insulation.

Energy Data

ML56 900/90 Series

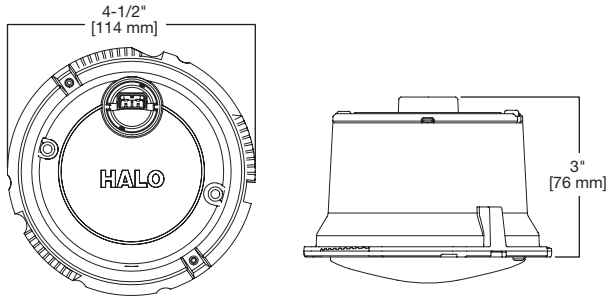
| |
|--|
| (Values at non-dimming line voltage) |
| Minimum Starting Temp: -30°C (-22°F) |
| EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer) |
| Sound Rating: Class A |
| Input Voltage: UNV 120V-277V |
| Power Factor: >0.95 @ 120V and >0.9 @277V |
| Input Frequency: 50/60Hz |
| THD: <20% |
| Max. Rated Wattage: 14W |
| Input Power: 13.4W |
| Input Current at 120V: 0.15A |
| Input Current at 277V: 0.08A |
| Driver Compliance: UL8750, Class II rated |
| Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F) |
| Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F) |



Refer to ENERGY STAR® Certified Products List.
 Can be used to comply with California Title 24 High Efficacy requirements.
 Certified to California Title 20 Appliance Efficiency Database.



Dimensions



Ordering Information

Sample Number: **ML5609930 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Modules 900 Series / 90 CRI

ML5609927= 5"/6" LED module, 900 lumen, 90CRI, 2700K

ML5609930= 5"/6" LED module, 900 lumen, 90CRI, 3000K

ML5609935= 5"/6" LED module, 900 lumen, 90CRI, 3500K

ML5609940= 5"/6" LED module, 900 lumen, 90CRI, 4000K

ML5609D2W930= 5"/6" dim-to-warm LED module, 900 lumen, 90CRI, 3000K to 1850K

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

591WB=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)

592SC=5" LED trim, specular reflector & white flange

592H=5" LED trim, haze reflector & white flange

592W=5" LED trim, white reflector & flange

593WB=5" LED trim, white micro-step baffle & flange

593BB=5" LED trim, black micro-step baffle & white flange

593SNB=5" LED trim, satin nickel micro-step baffle & flange

593TBZB=5" LED trim, tuscan bronze micro-step baffle & flange

594WB=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings

594SNB=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings

594TBZB=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings

595WW=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange

596WB=5" LED trim, white shallow baffle & flange – shallow and standard housings

690 Series - 6" LED Trims

691WB=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)

692SC=6" LED trim, specular reflector & white flange

692H=6" LED trim, haze reflector & white flange

692W=6" LED trim, white reflector & flange

693WB=6" LED trim, white micro-step baffle & flange

693BB=6" LED trim, black micro-step baffle & white flange

693SNB=6" LED trim, satin nickel micro-step baffle & flange

693TBZB=6" LED trim, tuscan bronze micro-step baffle & flange

694WB=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings

694SNB=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings

694TBZB=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings

695WW=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange

696WB=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

ML56 System Accessories

ML56CLIP=Friction clip mounting kit - For retrofitting non-torsion spring housings, 6" clips*

WW595SC=5" Wall wash insert - kick reflector for 595WW (1-included with trim) double or corner wall wash**

WW695SC=6" Wall wash insert - kick reflector for 695WW (1-included with trim) double or corner wall wash**

TRM590WH=5" LED oversize trim ring for use with 59" series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface

TRM690WH=6" LED oversize trim ring for use with 69" series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).

For eyeball trim (694 series) use ML7RAB retrofit adapter band.

**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.

Lighting Facts

ML5609927

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 739 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 55.1 |
| Color Accuracy (CRI) | 92 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 2700K |
| | |
| MODEL# ML5609927 | |

ML5609930

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 842 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 62.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3000K |
| | |
| MODEL# ML5609930 | |

ML5609D2W930

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 842 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 62.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3000K |
| | |
| MODEL# ML5609930 | |

ML5609935

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 872 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 65.1 |
| Color Accuracy (CRI) | 94 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 3500K |
| | |
| MODEL# ML5609935 | |

ML5609940

| PRODUCT SPECIFICATIONS | |
|---|--------------|
| Lumens (Light Output) | 922 |
| Watts | 13.4 |
| Lumens Per Watt (Efficacy) | 68.8 |
| Color Accuracy (CRI) | 93 |
| Light Color (CCT) Correlated Color Temperature (CCT) | 4000K |
| | |
| MODEL# ML5609940 | |

Housing – Trim Compatibility

Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

The ML56 LED module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in³ in addition to those noted below.

Halo UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

| Brand | Housing Type | Catalog Number | Description |
|-------|-------------------|----------------|--|
| Halo | Standard Housings | H750ICAT | 6" LED, Insulated Ceiling, Air-Tite, New Construction Housing |
| | | H750RICAT | 6" LED, Insulated Ceiling, Air-Tite, Remodel Housing |
| | | H750T | 6" LED, Non-IC, Air-Tite, New Construction Housing |
| | | H750TCP | 6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing |
| Halo | Shallow Housings | H2750ICAT | 6" LED, Shallow, Insulated Ceiling, Air-Tite, New Constr. (use with 691X, 694X, 696X trims only) |
| | | H2750RICAT | 6" LED, Shallow, Insulated Ceiling, Air-Tite, Remodel (use with 691X, 694X, 696X trims only) |

HALO - Incandescent E26 Screwbase Housings

| Brand | Housing Type | Catalog Number | Description |
|----------|--|----------------|--|
| Halo | Standard Housings | H7ICAT | 6" Insulated Ceiling, Air-Tite New Construction Housing |
| | | H7RICAT | 6" Insulated Ceiling, Air-Tite Remodel Housing |
| | | H7ICT | 6" Insulated Ceiling, New Construction Housing |
| | | H7RICT | 6" Insulated Ceiling, Remodel Housing |
| | | H7ICATNB | 6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket |
| | | H7ICTNB | 6" Insulated Ceiling, New Construction Housing, No Socket Bracket |
| | | H7T | 6" Non-IC, New Construction Housing |
| | | H7RT | 6" Non-IC, Remodel Housing |
| | | H7TNB | 6" Non-IC, New Construction Housing, No Socket Bracket |
| | | H7TCP | 6" Non-IC, Chicago Plenum, New Construction/Remodel Housing |
| | | H7UICAT | 6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing |
| | | E7ICAT | 6" IC, Air-Tite, New Construction Housing, 120V |
| | | E7ICATNB | 6" IC, AIRTITE, New Construction, No Socket Bracket Housing, 120V |
| | | E7TAT | 6" Non-IC, Air-Tite, New Construction Housing, 120V |
| | | E7TATNB | 6" Non-IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V |
| | | E27ICAT | 6" IC, Air-Tite, Shallow New Construction Housing, 120V |
| | | E27TAT | 6" Non-IC, Air-Tite, Shallow New Construction Housing, 120V |
| | | E7RICAT | 6" IC, Air-Tite, Remodel Housing, 120V |
| | | E7RTAT | 6" Non-IC, Air-Tite, Remodel Housing, 120V |
| | | Halo | Shallow Housings |
| H27RICAT | 6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| H27ICT | 6" Shallow, Insulated Ceiling, New Construction Housing (use with 691X, 694X, 696X trims only) | | |
| H27RICT | 6" Shallow, Insulated Ceiling, Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| H27T | 6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only) | | |
| H27RT | 6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only) | | |
| E27RICAT | 6" IC, Air-Tite, Shallow Remodel Housing, 120V | | |
| E27RTAT | 6" Non-IC, Air-Tite, Shallow Remodel Housing, 120V | | |

Halo LED Retrofit Enclosures

| Brand | Type | Catalog Number | Description |
|-------|----------|----------------|---|
| Halo | Retrofit | ML7BXRFK | 6" Retrofit Enclosure, Non-IC, BX Whip |
| | | ML7E26RFK | 6" Retrofit Enclosure, Non-IC, E26 Screw base Interface |

Housing Compatibility

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

(Note shallow housings for use with 591X, 594X, 596X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

| Brand | Housing Type | Catalog Number | Description |
|-------|-------------------|----------------|---|
| Halo | Standard Housings | H550ICAT | 5" LED, Insulated Ceiling, Air-Tite, New Construction Housing |
| | | H550RICAT | 5" LED, Insulated Ceiling, Air-Tite, Remodel Housing |

HALO - Incandescent E26 Screwbase Housings

| Brand | Housing Type | Catalog Number | Description | | |
|-------|-------------------|----------------|--|-----------|---|
| Halo | Standard Housings | H5ICAT | 5" Insulated Ceiling, Air-Tite New Construction Housing | | |
| | | H5RICAT | 5" Insulated Ceiling, Air-Tite Remodel Housing | | |
| | | H5ICATNB | 5" IC, Air-Tite New Construction, No Socket Bracket Housing, 120V | | |
| | | H5T | 5" Non-IC, New Construction Housing | | |
| | | H5RT | 5" Non-IC, Remodel Housing | | |
| | | H5TNB | 5" Non-IC, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5ICAT | 5" IC, Air-Tite, New Construction Housing, 120V | | |
| | | E5ICATNB | 5" IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5TAT | 5" Non-IC, Air-Tite, New Construction Housing, 120V | | |
| | | E5TATNB | 5" Non-IC, Air-Tite, New Construction, No Socket Bracket Housing, 120V | | |
| | | E5RICAT | 5" IC, Air-Tite, Remodel Housing, 120V | | |
| | | E5RTAT | 5" Non-IC, Air-Tite, Remodel Housing, 120V | | |
| | | Halo | Shallow Housings | H25ICAT | 5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only) |
| | | | | H25ICATNB | 5" IC, Air-Tite Shallow, New Const., No Socket Bracket Housing, 120V |

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

| Brand | Housing Type | Catalog Number |
|---------------------|-------------------|--|
| Juno | Standard Housings | IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2 |
| | Shallow Housing | IC21, IC21R (use with 691X, 694X, 696X trims only) |
| Capri | Standard Housings | CR1, PR1, QL1 |
| | Shallow Housing | R9ASIC/PS9RM (use with 691X, 694X, 696X trims only) |
| Elco | | HL7ICA (EL7ICA) |
| Lithonia | Standard Housings | LC6, L7X |
| | Shallow Housing | L7XP (use with 691X, 694X, 696X trims only) |
| Thomas | | PS1 |
| Commercial Electric | | C7ICA, H3 |
| Progress | Standard Housings | P87-AT † * |
| | Shallow Housing | P86TG (use with 691X, 694X, 696X trims only) |
| Lightolier | | 1104ICS †*, 1104ICR †* |

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

* ML56CLIP is compatible with only baffle and reflector trims

5" Trims: 591X, 596X

| Brand | Housing Type | Catalog Number |
|-------|-------------------|--------------------------|
| Juno | Standard Housings | IC20, IC25S, IC25W, TC20 |

ML56 900 Series Compliance Table

90 CRI LED Modules with ML56 Trims

| | ML5609927 | ML5609930 | ML5609D2W930 | ML5609935 | ML5609940 |
|----------|---------------|---------------|---------------|---------------|---------------|
| 593BB | IECC | IECC | IECC | IECC | T24, IECC |
| 693BB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593TBZB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693TBZB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593SNB | IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592H | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 593WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592W | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 595WW | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 592SC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692H | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 695WW | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 693WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692SC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 596WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 692W | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594TBZB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694TBZB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 696WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694SNB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594WB | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 594WB-30 | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |
| 694WB-30 | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC | ES, T24, IECC |

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24 = Can be used to comply with California Title 24 High Efficacy requirements. Certified to California Title 20 Appliance Efficiency Database.

IECC = International Energy Conservation Code "High Efficacy"

ML56 900 Series Lumen Table

90 CRI LED Modules with ML56 trims

| | Trim Catalog # | ML5609927 | | ML5609930 | | ML5609D2W930 | | ML5609935 | | ML5609940 | |
|----------------|----------------|-----------|-------|-----------|--------|--------------|-------|-----------|--------|-----------|------|
| | | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW | Lumens | LPW |
| 0° Tilt Angle | 593BB | 477.0 | 35.6 | 543.5 | 40.6 | 689.7 | 53.9 | 562.8 | 42.0 | 595.1 | 44.4 |
| | 693BB | 535.0 | 39.9 | 609.6 | 45.5 | 763.4 | 59.7 | 631.3 | 47.1 | 667.5 | 49.8 |
| | 593TBZB | 543.0 | 40.5 | 618.7 | 46.2 | 774.0 | 60.5 | 640.7 | 47.8 | 677.5 | 50.6 |
| | 693TBZB | 565.0 | 42.2 | 643.7 | 48.0 | 802.0 | 62.7 | 666.7 | 49.8 | 704.9 | 52.6 |
| | 593SNB | 599.0 | 44.7 | 682.5 | 50.9 | 858.2 | 67.1 | 706.8 | 52.7 | 747.3 | 55.8 |
| | 693SNB | 625.0 | 46.6 | 712.1 | 53.1 | 886.3 | 69.3 | 737.5 | 55.0 | 779.8 | 58.2 |
| | 592H | 670.0 | 50.0 | 763.4 | 57.0 | 967.0 | 75.6 | 790.6 | 59.0 | 835.9 | 62.4 |
| | 593WB | 702.0 | 52.4 | 799.8 | 59.7 | 996.8 | 77.9 | 828.3 | 61.8 | 875.8 | 65.4 |
| | 592W | 708.0 | 52.8 | 806.7 | 60.2 | 1014.4 | 79.3 | 835.4 | 62.3 | 883.3 | 65.9 |
| | 595WW | 725.0 | 54.1 | 826.0 | 61.6 | 1021.4 | 79.9 | 855.5 | 63.8 | 904.5 | 67.5 |
| | 592SC | 726.0 | 54.2 | 827.2 | 61.7 | 1024.9 | 80.1 | 856.7 | 63.9 | 905.8 | 67.6 |
| | 692H | 729.0 | 54.4 | 830.6 | 62.0 | 1028.4 | 80.4 | 860.2 | 64.2 | 909.5 | 67.9 |
| | 695WW | 730.0 | 54.5 | 831.7 | 62.1 | 1030.2 | 80.5 | 861.4 | 64.3 | 910.8 | 68.0 |
| | 693WB | 739.0 | 55.1 | 842.0 | 62.8 | 1046.0 | 81.8 | 872.0 | 65.1 | 922.0 | 68.8 |
| | 692SC | 749.0 | 55.9 | 853.4 | 63.7 | 1046.0 | 81.8 | 883.8 | 66.0 | 934.5 | 69.7 |
| | 596WB | 749.0 | 55.9 | 853.4 | 63.7 | 1049.5 | 82.1 | 883.8 | 66.0 | 934.5 | 69.7 |
| | 692W | 750.0 | 56.0 | 854.5 | 63.8 | 1068.8 | 83.6 | 885.0 | 66.0 | 935.7 | 69.8 |
| | 594TBZB | 755.0 | 56.3 | 860.2 | 64.2 | 1077.6 | 84.3 | 890.9 | 66.5 | 942.0 | 70.3 |
| | 694TBZB | 759.0 | 56.6 | 864.8 | 64.5 | 1079.3 | 84.4 | 895.6 | 66.8 | 947.0 | 70.7 |
| | 594SNB | 759.0 | 56.6 | 864.8 | 64.5 | 1086.3 | 84.9 | 895.6 | 66.8 | 947.0 | 70.7 |
| 696WB | 772.0 | 57.6 | 879.6 | 65.6 | 1100.4 | 86.0 | 910.9 | 68.0 | 963.2 | 71.9 | |
| 694SNB | 773.0 | 57.7 | 880.7 | 65.7 | 1103.9 | 86.3 | 912.1 | 68.1 | 964.4 | 72.0 | |
| 694WB | 805.0 | 60.1 | 917.2 | 68.4 | 1137.2 | 88.9 | 949.9 | 70.9 | 1004.3 | 75.0 | |
| 594WB | 806.0 | 60.1 | 918.3 | 68.5 | 1140.7 | 89.2 | 951.1 | 71.0 | 1005.6 | 75.0 | |
| 30° Tilt Angle | 594WB-30 | 781.0 | 58.3 | 889.9 | 66.4 | 1105.6 | 86.4 | 921.6 | 68.8 | 974.4 | 72.7 |
| | 694WB-30 | 759.0 | 56.6 | 864.8 | 64.5 | 1056.5 | 82.6 | 895.6 | 66.8 | 947.0 | 70.7 |

Photometry 5" Trims • 900 Series • 90 CRI

Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.88 | 1.00 | 1.04 | 1.10 |

Table based upon testing with 3000°K color temperature, 90CRI.

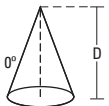
Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-592SC

| | |
|--------------|----------------------------------|
| Test Number | P130008 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Specular Clear Trim |
| Lumens | 827 |
| Efficacy | 61.7 Lm/W |
| SC | 1.06 |

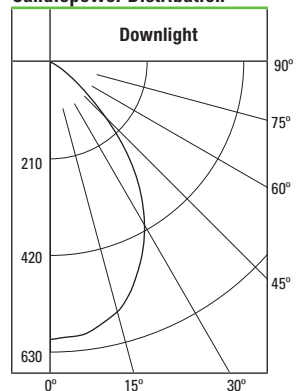


Cone of Light



| D | FC | L | W |
|-----|------|------|------|
| 5.5 | 19.9 | 5.8 | 5.8 |
| 7 | 12.3 | 7.2 | 7.2 |
| 8 | 9.4 | 8.4 | 8.4 |
| 9 | 7.4 | 9.4 | 9.4 |
| 10 | 6 | 10.4 | 10.4 |
| 12 | 4.2 | 12.6 | 12.6 |

Candlepower Distribution

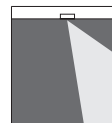


Zonal Lumen Summary

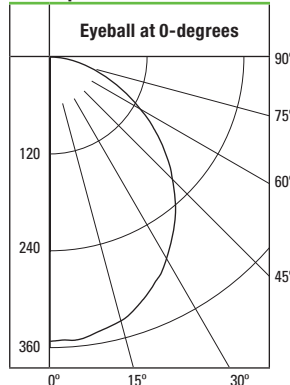
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 428 | 51.8 |
| 0-40 | 639 | 77.2 |
| 0-60 | 817 | 98.8 |
| 0-90 | 827 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 827 | 100 |

ML5609930-594WB

| | |
|--------------|----------------------------------|
| Test Number | P130064 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Directional Eyeball |
| Lumens | 918 |
| Efficacy | 68.5 Lm/W |
| SC | 1.22 |

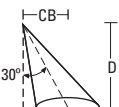


Candlepower Distribution



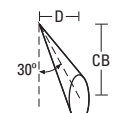
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|------|------|------|-----|
| 5.5 | 10.3 | 6.6 | 6.6 | 3.2 |
| 7 | 6.3 | 8.3 | 8.6 | 4 |
| 8 | 4.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3.8 | 10.7 | 11 | 5.2 |
| 10 | 3.1 | 11.9 | 12.2 | 5.8 |
| 12 | 2.2 | 14.3 | 14.6 | 6.9 |



30° Vertical Plane

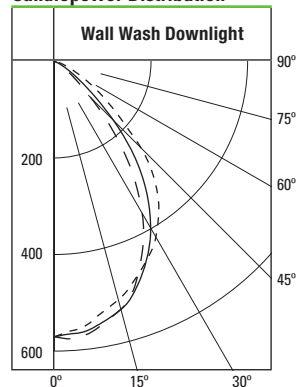
| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 200.5 | 1.1 | 1.2 | 1.7 |
| 2' | 50.1 | 2.2 | 2.6 | 3.5 |
| 3' | 22.3 | 3.3 | 3.8 | 5.2 |
| 4' | 12.5 | 4.5 | 5.2 | 6.9 |
| 5' | 8 | 5.6 | 6.6 | 8.7 |
| 6' | 5.6 | 6.7 | 7.8 | 10.4 |



Zonal Lumen Summary

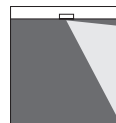
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 271 | 29.5 |
| 0-40 | 437 | 47.6 |
| 0-60 | 744 | 81 |
| 0-90 | 918 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 918 | 100 |

Candlepower Distribution



ML5609930-595WW

| | |
|--------------|---|
| Test Number | P130088 |
| Light Module | 900 Series, 90CRI |
| Trim | 5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 826 |
| Efficacy | 61.6 Lm/W |
| SC | 1.06 |



Zonal Lumen Summary

| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 406 | 49.1 |
| 0-40 | 611 | 73.9 |
| 0-60 | 804 | 97.4 |
| 0-90 | 826 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 826 | 100 |

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | ● | 1' | 2' | 3' | 4' | 5' | 6' |
|-----|------|------|-----|-----|-----|-----|-----|
| 1' | 3.4 | 2.2 | 0.8 | 0.2 | 0.1 | 0 | 0 |
| 2' | 11.8 | 8.6 | 3.7 | 1.1 | 0.3 | 0.1 | 0 |
| 3' | 13.7 | 11.4 | 6.1 | 2.4 | 0.9 | 0.3 | 0.1 |
| 4' | 9.6 | 8.7 | 6.2 | 3.3 | 1.5 | 0.6 | 0.3 |
| 5' | 6.4 | 6 | 4.7 | 3.2 | 1.9 | 0.9 | 0.4 |
| 6' | 4.3 | 4.1 | 3.5 | 2.6 | 1.8 | 1.1 | 0.6 |
| 7' | 3 | 2.9 | 2.5 | 2 | 1.5 | 1.1 | 0.7 |
| 8' | 2.1 | 2.1 | 1.9 | 1.6 | 1.3 | 1 | 0.7 |
| 9' | 1.6 | 1.5 | 1.4 | 1.2 | 1 | 0.8 | 0.6 |
| 10' | 1.2 | 1.2 | 1.1 | 1 | 0.8 | 0.7 | 0.6 |

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

| DD | --3'-- | | | --4'-- | | |
|-----|--------|------|------|--------|------|------|
| 1' | 3.6 | 2.8 | 3.6 | 3.4 | 1.6 | 3.4 |
| 2' | 12.8 | 11.6 | 12.8 | 12.1 | 7.3 | 12.1 |
| 3' | 16.1 | 17.5 | 16.1 | 14.6 | 12.3 | 14.6 |
| 4' | 12.9 | 14.8 | 12.9 | 11.1 | 12.3 | 11.1 |
| 5' | 9.5 | 10.6 | 9.5 | 8.2 | 9.5 | 8.2 |
| 6' | 6.9 | 7.5 | 6.9 | 6.1 | 6.9 | 6.1 |
| 7' | 5 | 5.3 | 5 | 4.5 | 5.1 | 4.5 |
| 8' | 3.7 | 3.9 | 3.7 | 3.4 | 3.8 | 3.4 |
| 9' | 2.8 | 2.9 | 2.8 | 2.6 | 2.8 | 2.6 |
| 10' | 2.1 | 2.2 | 2.1 | 2 | 2.2 | 2 |

Legend

| | | |
|----------|-----|------|
| 0-deg: | --- | Wall |
| 90-deg: | --- | Side |
| 180-deg: | --- | Room |

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 6" Trims • 900 Series • 90 CRI

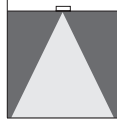
Multiplier Table

| CCT Option | 2700 K | 3000 K | 3500 K | 4000 K |
|----------------|--------|--------|--------|--------|
| CCT Multiplier | 0.88 | 1.00 | 1.04 | 1.10 |

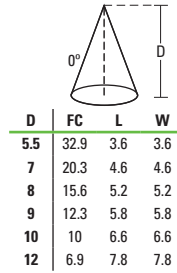
Table based upon testing with 3000°K color temperature, 90CRI.
 Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-692SC

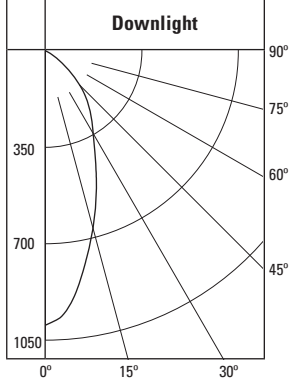
| | |
|--------------|----------------------------------|
| Test Number | P130104 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Specular Clear Trim |
| Lumens | 853 |
| Efficacy | 63.7 Lm/W |
| SC | 0.66 |



Cone of Light



Candlepower Distribution

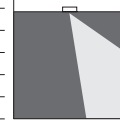


Zonal Lumen Summary

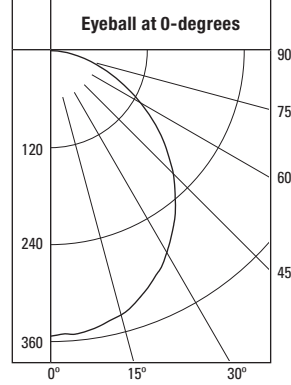
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 469 | 54.9 |
| 0-40 | 649 | 76.1 |
| 0-60 | 842 | 98.7 |
| 0-90 | 853 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 853 | 100 |

ML5609930-694WB

| | |
|--------------|----------------------------------|
| Test Number | P130160 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Directional Eyeball |
| Lumens | 917 |
| Efficacy | 68.4 Lm/W |
| SC | 1.21 |

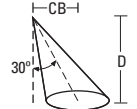


Candlepower Distribution



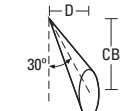
30° Horizontal Plane

| D | FC | L | W | CB |
|-----|------|------|------|-----|
| 5.5 | 10.3 | 6.6 | 6.6 | 3.2 |
| 7 | 6.3 | 8.3 | 8.6 | 4 |
| 8 | 4.8 | 9.6 | 9.8 | 4.6 |
| 9 | 3.8 | 10.7 | 11 | 5.2 |
| 10 | 3.1 | 12 | 12.2 | 5.8 |
| 12 | 2.2 | 14.3 | 14.6 | 6.9 |



30° Vertical Plane

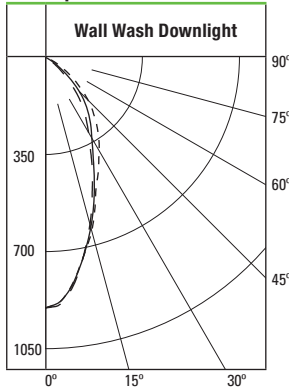
| D | FC | L | W | CB |
|----|-------|-----|-----|------|
| 1' | 200.5 | 1.1 | 1.2 | 1.7 |
| 2' | 50.1 | 2.2 | 2.6 | 3.5 |
| 3' | 22.3 | 3.3 | 3.8 | 5.2 |
| 4' | 12.5 | 4.5 | 5.2 | 6.9 |
| 5' | 8 | 5.6 | 6.6 | 8.7 |
| 6' | 5.6 | 6.7 | 7.8 | 10.4 |



Zonal Lumen Summary

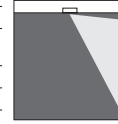
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 271 | 29.5 |
| 0-40 | 437 | 47.6 |
| 0-60 | 744 | 81.1 |
| 0-90 | 917 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 917 | 100 |

Candlepower Distribution



ML5609930-695WW

| | |
|--------------|---|
| Test Number | P130184 |
| Light Module | 900 Series, 90CRI |
| Trim | 6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector |
| Lumens | 832 |
| Efficacy | 62.1 Lm/W |
| SC | 0.69 |



Zonal Lumen Summary

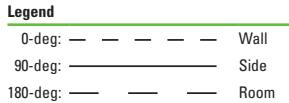
| Zone | Lumens | %Fixture |
|--------|--------|----------|
| 0-30 | 445 | 53.5 |
| 0-40 | 622 | 74.8 |
| 0-60 | 813 | 97.7 |
| 0-90 | 832 | 100 |
| 90-180 | 0 | 0 |
| 0-180 | 832 | 100 |

Single Unit Footcandles

| 2.5' From Wall (Distance From Fixture Along Wall) | DD | 1' | 2' | 3' | 4' | 5' | 6' |
|---|------|-----|-----|-----|-----|-----|-----|
| 1' | 2.5 | 1.4 | 0.5 | 0.2 | 0 | 0 | 0 |
| 2' | 10.9 | 7.7 | 3.4 | 1.1 | 0.3 | 0.1 | 0 |
| 3' | 11.6 | 9.5 | 5.5 | 2.5 | 0.9 | 0.3 | 0.1 |
| 4' | 8.7 | 7.5 | 5.2 | 3 | 1.5 | 0.6 | 0.3 |
| 5' | 6.2 | 5.5 | 4.1 | 2.8 | 1.7 | 0.9 | 0.4 |
| 6' | 4.4 | 4 | 3.2 | 2.3 | 1.5 | 1 | 0.6 |
| 7' | 3.3 | 3 | 2.5 | 1.9 | 1.3 | 0.9 | 0.6 |
| 8' | 2.5 | 2.3 | 1.9 | 1.5 | 1.1 | 0.8 | 0.6 |
| 9' | 2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.7 | 0.5 |
| 10' | 1.5 | 1.4 | 1.3 | 1 | 0.8 | 0.6 | 0.5 |

Multiple Unit Footcandles

| 2.5' From Wall (Distance From Fixture Along Wall) | DD | --3'-- | --4'-- | 2.5' | 1' | 2.5' |
|---|------|--------|--------|------|------|------|
| 1' | 2.6 | 1.9 | 2.6 | 2.5 | 1 | 2.5 |
| 2' | 11.9 | 10.8 | 11.9 | 11.1 | 6.7 | 11.1 |
| 3' | 14.1 | 15.1 | 14.1 | 12.5 | 11 | 12.5 |
| 4' | 11.8 | 12.9 | 11.8 | 10.2 | 10.4 | 10.2 |
| 5' | 8.9 | 9.8 | 8.9 | 7.8 | 8.3 | 7.8 |
| 6' | 6.7 | 7.4 | 6.7 | 5.9 | 6.4 | 5.9 |
| 7' | 5.1 | 5.6 | 5.1 | 4.6 | 5 | 4.6 |
| 8' | 4 | 4.3 | 4 | 3.6 | 3.9 | 3.6 |
| 9' | 3.2 | 3.4 | 3.2 | 2.9 | 3.1 | 2.9 |
| 10' | 2.5 | 2.7 | 2.5 | 2.3 | 2.5 | 2.3 |



Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.