

Project		Catalog #		Type	
Prepared by		Notes		Date	



## HALO

### ML Flex Series - Canless LED Downlighting 4-inch Round & Square Downlights and Wall Washers

The ML Flex Series is a set of striking, high-performance fixtures available in four sizes (1, 2, 3, and 4-inch). ML Flex Canless luminaires share light engines between the two larger and two smaller aperture sizes making trim changes between size, shape (round or square), and downlight or wall wash effortless.

The ML Flex 4-inch fixtures are offered with an array of downlight and wall wash trims in flanged, smooth or baffle, and round or square. Control beam angles with interchangeable 25° asymmetric wall wash, 25°, 40°, and 55° optics. Customize lighting with lumen select and 5-color or Dim-to-Warm seleCCTable™ along with flicker-free dimming to less than 5% in phase cut (120V) or 0-10V (120-277V) versions. For a beautiful, quiet ceiling, install ML Flex 4-inch fixtures with a rimless mud-in ring.

**Typical Applications** Residential, Hospitality, Healthcare, Retail

#### Interactive Menu

- Order Information page 2
- Product Specifications page 6
- Energy Data page 8
- Photometric Data page 9
- Product Warranty



Can be used to comply with California Title 24 High Efficiency requirements.<sup>1</sup>  
Certified to California Appliance Efficiency Database under JAB.



## Top Product Features

- 4" Canless LED Downlights and Wall Washers mount directly to the ceiling (no housing required)
- Use with canless mounting frames for new construction installations
- **Trims:** Flanged downlight or wall wash trims in smooth or baffle and round or square; accessories available (order separately)
- **Lens:** Clear lens that is field removable
- **Field-interchangeable TIR optics:** 25° asymmetric wall wash, 25°, 40°, and 55° (ships with 40° TIR optic)
- **Color SeleCCTable™:**
  - 5-color Field-SeleCCTable™ (2700/3000/3500/4000/5000K); 90+ CRI
  - Field-SeleCCTable™ Dim-to-Warm: 3000K-to-1800K or 2700K-to-1800K; 90+ CRI
- **Lumen Select:** Low/Medium/High = 600/900/1200 lm (nominal)
- **Dimming Versions:** Dims to less than 5% in either phase cut LE/TE (120V) with compatible dimmers OR 0-10V (UNV 120-277V)
- AIR-TITE, Wet location-listed, IC-rated
- 50,000 hrs of maintenance-free operation
- 5-year warranty

## Order Information

## Stock: 4" ML Flex Downlights

Stock ML Flex fixtures come fully assembled and include the LED light engine, 40° TIR optic, removable clear lens, remote driver / junction box, and interchangeable trim.

Optional new construction mounting frames, flushmount mud-in rings (coming soon), interchangeable TIR optics, and driver-to-light engine extension cables are also available.

## Phase Cut LE/TE Dimming, 120V Input

Catalog Number	Description	Lumens (nominal)	CRI / CCT	Dimming / Driver	Trim Finish	TIR Optic
<b>ML4LSFS1ERMB</b>	4" Round Smooth LED Canless Downlight	Lumen Selectable 600/900/1200 lm	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black	40°
<b>ML4LSFS1ERMW</b>	4" Round Smooth LED Canless Downlight	Lumen Selectable 600/900/1200 lm	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte White	40°
<b>ML4LSFS1ESMB</b>	4" Square Smooth LED Canless Downlight	Lumen Selectable 600/900/1200 lm	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black	40°
<b>ML4LSD2W1ERMB</b>	4" Round Smooth LED Canless Downlight	600 lm	90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black	40°
<b>ML4LSD2W1ESMB</b>	4" Square Smooth LED Canless Downlight	600 lm	90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black	40°
<b>ML4LSD2W1ESMW</b>	4" Square Smooth LED Canless Downlight	600 lm	90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte White	40°

## Stock: 4" ML Flex Wall Washers

Stock ML Flex fixtures come fully assembled and include the LED light engine, 25° Asymmetric Wall Wash TIR optic, removable clear lens, remote driver / junction box, and interchangeable trim.

Optional new construction mounting frames, flushmount mud-in rings (coming soon), interchangeable TIR optics, lenses, and driver-to-light engine extension cables are also available.

## Phase Cut LE/TE Dimming, 120V Input

Catalog Number	Description	Lumens (nominal)	CRI / CCT	Dimming / Driver	Trim Finish	TIR Optic
<b>ML4LSD2W1ESWMB</b>	4" Square Smooth LED Canless Wall Wash	600 lm	90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black <sup>(3)</sup>	25° asymmetric WW TIR optic
<b>ML4LSD2W1ESWMW</b>	4" Square Smooth LED Canless Wall Wash	600 lm	90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte White	25° asymmetric WW TIR optic

## Made to Order: 4" ML Flex Fixtures

Stock ML Flex fixtures come fully assembled and include the LED light engine, 40° TIR optic, removable clear lens, remote driver / junction box, and interchangeable trim.

Optional new construction mounting frames, flushmount mud-in rings (coming soon), interchangeable TIR optics, lenses, and driver-to-light engine extension cables are also available.

Module	Lumens (nominal) <sup>(1)</sup>	CRI/CCT	Driver	Shape	Trim Type	Trim Finish
<b>ML4</b> = 4" LED Light Engine	<b>LS</b> = Lumen Selectable 600/900/1200 lm	<b>FS</b> = 90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K <b>D2W</b> = 90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K <sup>(1)</sup>	<b>1E</b> = ≤5% Phase Cut LE/TE Dimming, 120V 60Hz <b>E010</b> = ≤5% 0-10V Dimming, UNV 120-277V 50Hz/60Hz <sup>(2)</sup>	<b>R</b> = Round <b>S</b> = Square	<b>Blank</b> = Downlight <sup>(3)</sup> <b>W</b> = Wall Wash <sup>(4)</sup>	<b>MW</b> = Paintable Matte White <b>SL</b> = Silver <b>MB</b> = Matte Black <b>MWB</b> = Paintable Matte White Baffle <sup>(5)</sup> <b>SLB</b> = Silver Baffle <sup>(5)</sup> <b>MBB</b> = Matte Black Baffle <sup>(5)</sup>
<b>Notes</b>	<b>Notes</b>	<b>Notes</b>	<b>Notes</b>	<b>Notes</b>	<b>Notes</b>	<b>Notes</b>
	1. D2W versions are 600 lumens (not lumen selectable)	1. D2W versions are 600 lumens (not lumen selectable)	2. D2W version is not available with the 0-10V driver.		3. Includes 40° TIR optic 4. Wall Wash includes 25° asymmetric wall wash TIR optic	5. Wallwash trims are not available with Baffle options

## Order Information

## Optional Accessories

Catalog Number	Description
<b>Optics</b>	
TIR4D25NFL	25° narrow flood optic (fits 3" & 4" ML Flex fixtures)
TIR4D40FL	40° flood optic (fits 3" & 4" ML Flex fixtures)
TIR4D55WFL	55° wide flood optic (fits 3" & 4" ML Flex fixtures)
TIR4D25AWW	25° asymmetric wall wash optic (fits 3" & 4" ML Flex fixtures)
TIR45MH12PK	Replacement media holder – 12-pack (fits 3" & 4" ML Flex fixtures)

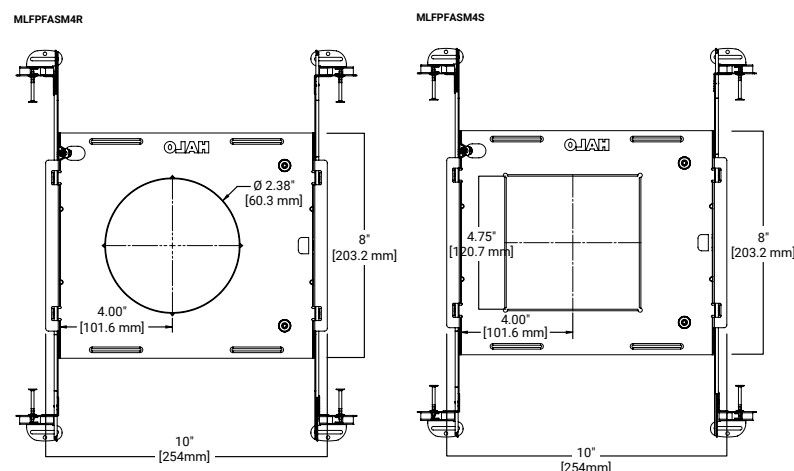
<b>Mud-in Ceiling Mounts for Downlights &amp; Wall Washers</b>	
WWMA-4	Wall Wash Mounting Adjustment 4"

4MFMR	4" Round Flushmount Mud-in Ring (coming soon)
4MFMS	4" Square Flushmount Mud-in Ring (coming soon)

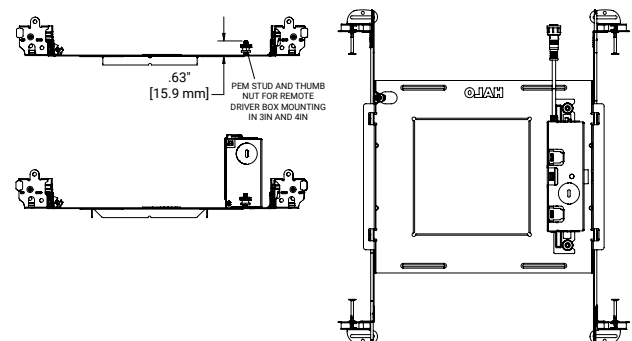
<b>Media Optics</b>	
L113	Prismatic Spread Lens broadens beam patterns, creates a wide, uniform distribution of light.
L115	Linear Spread Lens fans the beam to produce a wide, rectangular pattern.
L120	Red DC Filter 2"
L121	Amber DC Filter 2"
L122	Yellow DC Filter 2"
L123	Green DC Filter 2"
L124	Daylight DC Filter 2"
LHEX	2-inch diameter matte black hex cell louver provides 45° cutoff, 50W maximum use limit.

<b>Extension Cables</b> Fixture-to-Junction Box Extension Cable (order separately) Use HALO Canless Extension Cables in applications where junction boxes need to be installed further away from the fixture – either for convenience or to save on line-voltage wire. (Co-locating junction boxes makes adjustments and maintenance fast and easy.)	
HLB06FSEC	6 ft. extension cable
HLB12FSEC	12 ft. extension cable
HLB20FSEC	20 ft. extension cable

<b>ML Flex New Construction Mounting Frames</b> Designed to ensure the proper placement and alignment of canless LED downlights in new construction projects. It features adjustable hanger bars, integrated thumb screws, and pre-installed nails for easy installation and compliance with local code requirements.	
MFML4R	4" Round ML Flex New Construction Mounting Frame
MFML4S	4" Square ML Flex New Construction Mounting Frame



DRIVER MOUNTING METHOD FOR 3IN AND 4IN

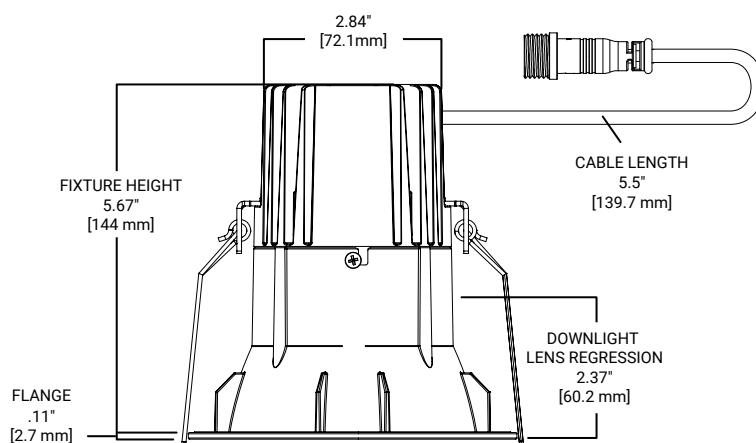
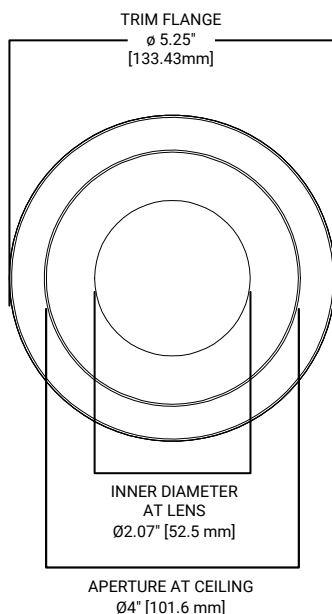


## Dimensional and Mounting Details

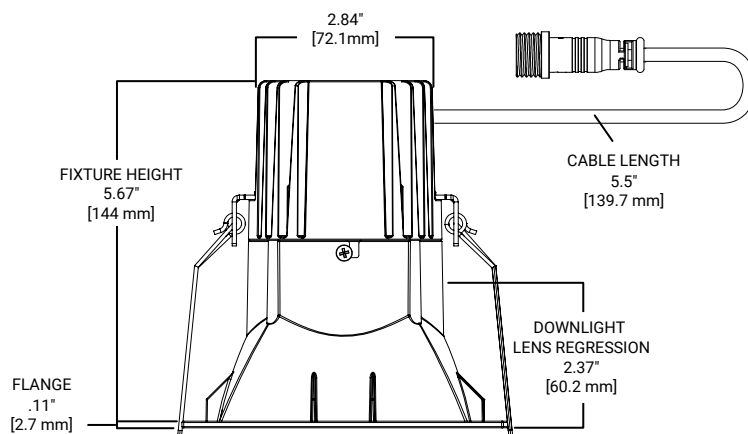
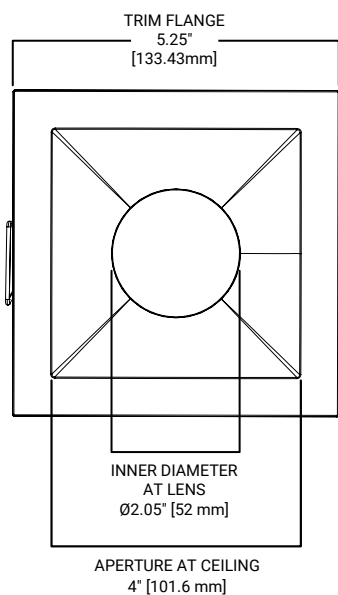
### Cut Out (Templates included in instructions and packaging)

- 4" Round Fixture = 4-3/4" [120.7mm] circle / hole saw
- 4" Square Fixture = 4-3/4" [120.7mm] square

### 4" ROUND DOWNLIGHT

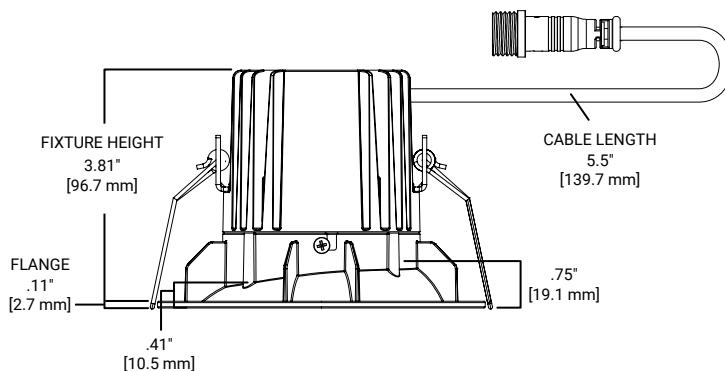
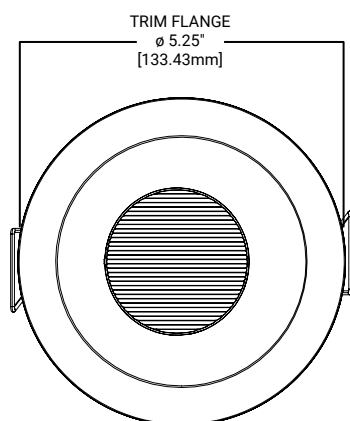


### 4" SQUARE DOWNLIGHT

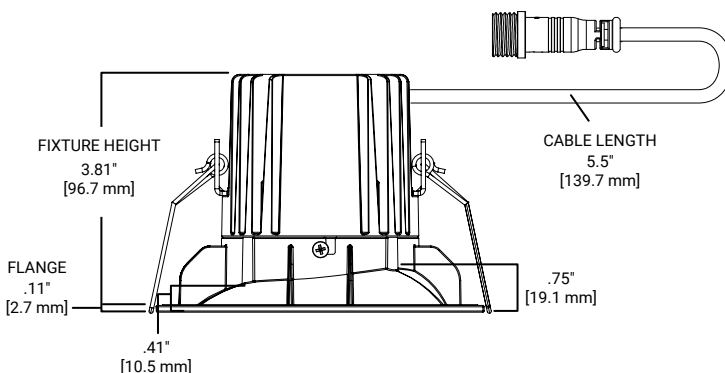
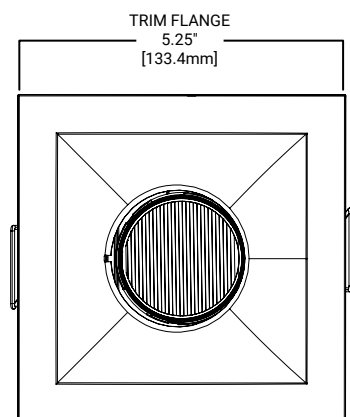


## Dimensional and Mounting Details

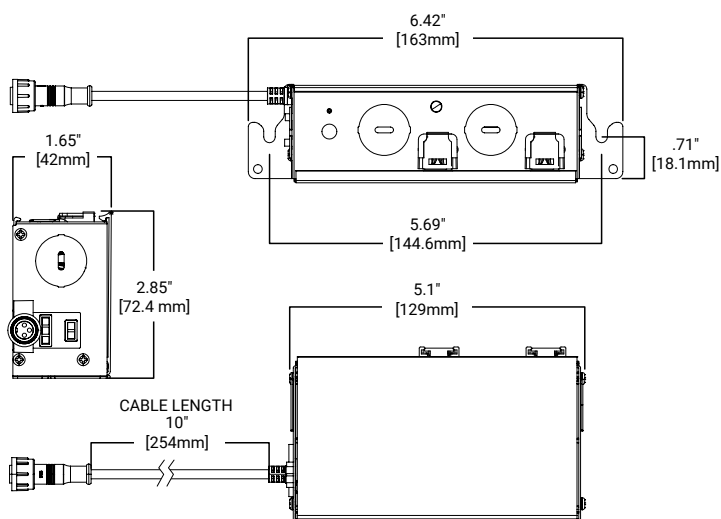
### 4" ROUND WALL WASH



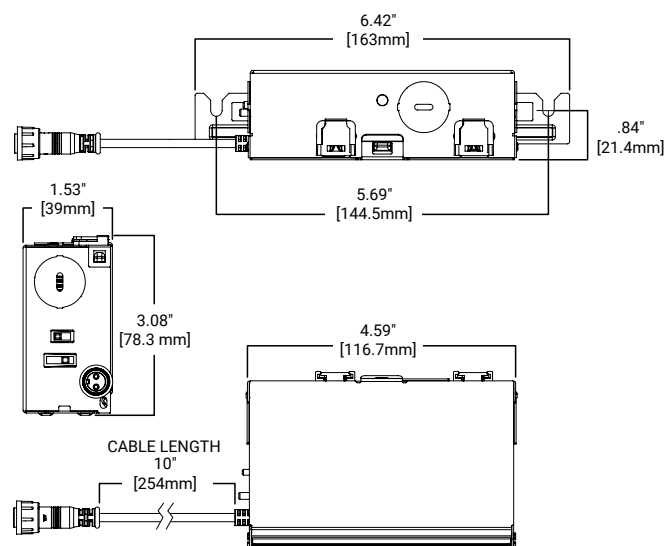
### 4" SQUARE WALL WASH



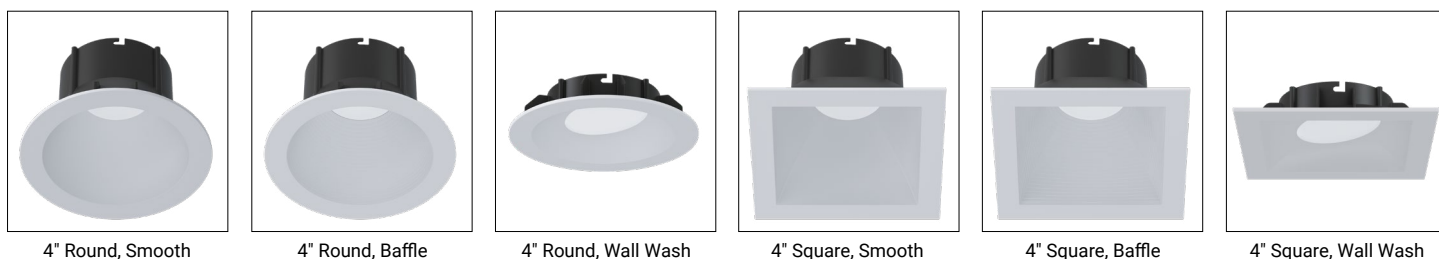
### 5-color SeleCCTable™ J-Box & Driver



### SeleCCTable™ Dim-to-Warm J-Box & Driver



## Trim Types

Matte  
WhiteMatte  
Black

Silver

## Product Specifications

## Construction

- Die cast aluminum trims for Downlights
- Regressed painted trims as smooth or baffle
- High impact lens provides airtite and wet location

## Module

- The LED recessed downlight consists of an Chip on Board LED array, optical assembly, driver, and trim
- Achieves L70 at 50,000 hrs in IC (insulation contact) and non-IC applications

## Selectable System

- Use the CCT select switch to choose between 2700K, 3000K, 3500K, 4000K, and 5000K CCT
- Use the Dim-to-Warm select switch option to choose between 3000K to 1800K or 2700K to 1800K, the light will have a warmer color temperature as the fixture dims
- Factory default is set to 3000K
- Use the 3-position Lumen Select switch to choose the brightness level (Low, Medium, High)
- Lumen Select factory default is to the highest lumen option

## LED Array

- Mid-power LED array provides a uniform light source with high efficiency and no pixilation
- 90+ CRI minimum, R9 greater than 50
- Color accuracy at 3 SCDM at the endpoints and 4 SCDM in the middle provides color consistency and uniformity
- Color Temperature (CCT) is set to a factory default of 3000K

## Junction Box

- Die formed metal driver/ junction box with captive hinged junction box cover
- Listed for (6) #12 AWG 90°C splice conductors, 2-in, 2-out plus (2) ground
- 4" fixtures – (4) ½" conduit pry-outs
  - Accepts 14-2, 14-3, 12-2, 12-3 U.S. and 14-2, 14-3, 12-2 Canadian NM Cable
- (2) Slide-N-Side™ non-metallic (NM) wire traps
  - Accepts 14-2, 14-3, 12-2, 12-3 U.S. and 14-2, 14-3, 12-2 Canadian NM Cable
- (3) 4-port push wire nuts with clear caps for quick and reliable mains voltage connection

## Driver

- Available in 120V 60Hz or 120V-277 50/60Hz, constant current driver provides noise-free, high-efficiency operation
- **Dimmable:** Continuous, flicker-free dimming from 100% to 5% with:
  - Compatible leading or trailing edge (LE/TE) 120V phase cut dimmers; (See Dimming Guide for compatible dimmers.)
  - Optional 0-10V 120V-277V dimmers; (See Dimming Guide for compatible dimmers)
  - **Tip:** For optimal dimming performance, consider dimmers with low-end trim adjustment; Note that some dimmers require a neutral wire in the box.
- **Wiring:** Includes quick connect push connectors for mains power connections.
- Plenum rated inline electrical quick connect provides low voltage connection to fixture fitting, CMP/FT6 rated

## Installation

- Can be installed in 3/8" to 1-1/2" thick ceilings
- Round or Square ceiling cutout
- Heat treated springs hold fixture fitting securely in the ceiling eliminating light leaks
- Can be removed from below the ceiling for service or replacement

## Mounting Frame

- Galvanized steel mounting frame with offset aperture and integral bar hanger receivers
- Locking screws provide positive horizontal locking
- Captive thumbscrews provide toolless attachment of the fixture's remote driver / junction box to the mounting frame for wiring during rough-in phase
- 1/2" drywall collar included to improve hole locating and drywall cutting process
- Collar is notched at 90° intervals for laser centering
- GOT NAIL! Gen 3 bar hangers adjust from 8" to 24" wide
- Pass thru feature allows shortening without removal
- Captive nail penetrates standard and engineered lumber
- Mounting flange levels platform with ceiling
- Integral clip attaches directly to tee-bar.

## Airtite

- The Downlights meet Airtight ASTM-E283 requirements without gasket as long as lens is included in trim (default)

## Trim Options

- Round and Square die cast trims are available in multiple colors
  - Matte White
  - Silver
  - Matte Black
- Trim cut off to reduce glare provides 50° cut off in the 4" Downlights
- Die cast trims are available in smooth and baffle

## Compliance

- UL Certified US and Canada Type IC suitable for direct contact with air permeable insulation
- Suitable for installation in plenum spaces
- Wet location listed with included lens
- Airtight per ASTM-E283 with installed lens (no gasket necessary)
- Suitable for use in clothes closets when installed in accordance with the NEC 410.16 spacing requirements
- EMI/RFI emissions per FCC 47CFR Part 15 consumer limits
- Contains no mercury or lead and RoHS compliant<sup>(1)</sup>
- Photometric testing in accordance with IES LM-79-08
- Lumen maintenance projections in accordance with IES LM-80-08 and TM-21-11
- Can be used for State of California Title 24 high efficacy LED compliance under JA8<sup>(1)</sup>, reference Modernized Appliance Efficiency Database System (MAEDBS) for 2022 JA8 High Efficacy Lighting

## Warranty

- Five year limited warranty, consult website for details. [www.cooperlighting.com/warranty](http://www.cooperlighting.com/warranty)

## Summary

	1"	2"	3"	4"
CCT	2700K/3000K/3500K/4000K/5000K			
Warming Dimming (option)	1800K-3000K or 1800K-2700K			
Lumens	100/200/400	200/400/550	400/800/1000	600/900/1200
Downlight	✓	✓	✓	✓
Wall Wash			✓	✓
Adjustable		✓	✓	✓
Optics	25°/40°/55° TIR Optics		25° asymmetric wall wash/25°/40°/55° TIR optics	
Cut Off	55°	55°	55°	50°
Input Voltage	120V or 120V-277V			
Dimming	Phase 120V or 0-10V 120V-277V			
Optical Accessories			Honeycomb Louver Clear Glass Prismatic Spread Linear spread Diffuse Sand Blasted Soft Focus Red Dichroic Filter Blue Dichroic Filter Green Dichroic Filter	
Trim Finishes	Matte Black Matte White Silver			
Trim Shapes	Round or Square			
Trim Options	Round Smooth Round Baffle Square Smooth Square Baffle			
Ceiling Applications	Flange Flushmount Mud-in Mounting Frame	Flange Flushmount Mud-in Mounting Frame	Flange Flushmount Mud-in Mounting Frame	Flange Flushmount Mud-in Mounting Frame
Standards	UL/ Title 24 JA8 <sup>(1)</sup>			
Ratings	Wet location (when lens is installed, default) / Airtight (when lens is installed, default)			
LED Lifetime	L70 to 50,000 hrs			
Warranty	5 years			

## Energy Data

ML4 Triac (High Lumen)	120V
Input Power(W)	17.4
Input Current(A)	0.148
PF	>0.9
THDi(%)	< 20
Inrush Current(A)	0.996
Inrush Duration(μs)	96
Sound(dBA)	< 22

ML4 Triac (Mid Lumen)	120V
Input Power(W)	13.57
Input Current(A)	0.117
PF	>0.9
THDi(%)	< 20
Inrush Current(A)	0.93
Inrush Duration(μs)	91
Sound(dBA)	< 22

ML4 Triac (Low Lumen)	120V
Input Power(W)	10.27
Input Current(A)	0.09
PF	>0.9
THDi(%)	< 20
Inrush Current(A)	0.89
Inrush Duration(μs)	94
Sound(dBA)	< 22

ML4 D2W	120V
Input Power(W)	9.2
Input Current(A)	0.078
PF	> 0.9
THDi(%)	< 20
Inrush Current(A)	0.68
Inrush Duration(μs)	96
Sound(dBA)	< 22

ML4 0-10V (High Lumen)	120V	277V
Input Power(W)	17.3	17.1
Input Current(A)	0.143	0.063
PF	>0.9	> 0.9
THDi(%)	< 20	< 20
Inrush Current(A)	0.72	1.87
Inrush Duration(μs)	121	119
Sound(dBA)	< 22	< 22

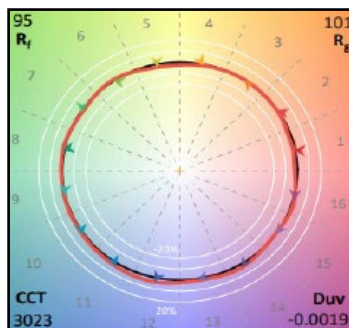
ML4 0-10V (Mid Lumen)	120V	277V
Input Power(W)	15.23	15.23
Input Current(A)	0.127	0.058
PF	>0.9	> 0.9
THDi(%)	< 20	< 20
Inrush Current(A)	0.71	1.75
Inrush Duration(μs)	119	115
Sound(dBA)	< 22	< 22

ML4 0-10V (Low Lumen)	120V	277V
Input Power(W)	12.33	12.69
Input Current(A)	0.102	0.049
PF	>0.9	> 0.9
THDi(%)	< 20	< 20
Inrush Current(A)	0.69	1.62
Inrush Duration(μs)	115	111
Sound(dBA)	< 22	< 22

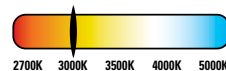
## Energy &amp; Performance Data

## COLOR METRICS - TM-30-15 &amp; CRI/CIE (3000K)

## 90 CRI Color Metric Summary - 3000K\*



TM-30-15	Rf = 95
	Rg = 101
CRI/CIE	Ra = 97.4
	R9 = 88.6



— Reference Illuminant — Test Source

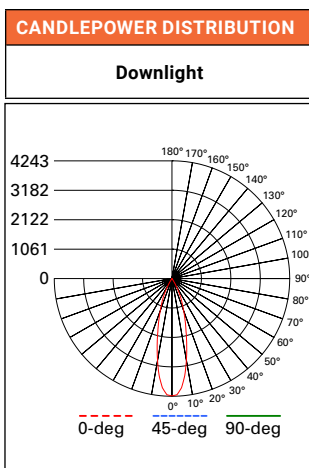


## Photometric Data



## 4" ROUND - NARROW FLOOD DISTRIBUTION - MATTE WHITE FINISH, 90 CRI, 3000K

4" ROUND	
Test Number	P886996
Fixture	ML412LS-FL9FS1E-TIR4D-25NFL-TL4RD-MW-1200LM-3000K
Lumens	1367 Lm
Watts	17.6 W
Efficacy	77.7 Lm/W
SC	0.47
Beam Angle	28°
UGR	11



**CONE OF LIGHT**

MH	FC	L	W
5.5'	140.3	2.6	2.6
7'	86.6	3.2	3.2
8'	66.3	3.6	3.6
9'	52.4	4.2	4.2
10'	42.4	4.6	4.6
12'	29.5	5.6	5.6

**CANDELA TABLE**

Degrees Vertical	Candela
0	4243
5	3963
15	1971
25	747
35	82
45	25
55	21
65	16
75	9
85	3
90	0

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Fixture
0-30	1232	90.1
0-40	1300	95.1
0-60	1338	97.9
0-90	1367	100
90-180	0	0
0-180	1367	100

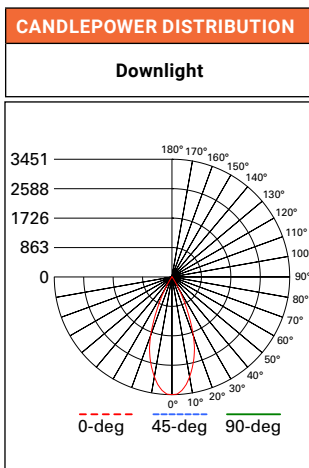
Values are nominal for matte white reflectors, other may vary.  
SC = Spacing Criteria  
UGR = Unified Glare Rating

**LUMINANCE**

Average Candela Degrees	Average 0° Luminance
45	4309
55	4430
65	4524
75	4432
85	4387

## 4" ROUND - FLOOD DISTRIBUTION - MATTE WHITE FINISH, 90 CRI, 3000K

4" ROUND	
Test Number	P887026
Fixture	ML412LS-FL9FS1E-TIR4D-40FL-TL4RD-MW-1200LM-3000K
Lumens	1571 Lm
Watts	17.6 W
Efficacy	89.3 Lm/W
SC	0.67
Beam Angle	40°
UGR	11



**CONE OF LIGHT**

MH	FC	L	W
5.5'	114.1	3.6	3.6
7'	70.4	4.6	4.6
8'	53.9	5.2	5.2
9'	42.6	6	6
10'	34.5	6.6	6.6
12'	24	8	8

**CANDELA TABLE**

Degrees Vertical	Candela
0	3451
5	3340
15	2479
25	1002
35	73
45	16
55	13
65	10
75	6
85	2
90	0

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Fixture
0-30	1452	92.4
0-40	1526	97.2
0-60	1552	98.8
0-90	1571	100
90-180	0	0
0-180	1571	100

Values are nominal for matte white reflectors, other may vary.  
SC = Spacing Criteria  
UGR = Unified Glare Rating

**LUMINANCE**

Average Candela Degrees	Average 0° Luminance
45	2878
55	2882
65	3006
75	2955
85	2972

## CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.97	1.00	1.03	1.07	1.13

Multipliers may be used to determine other relative CCT values

## Color Finish Multipliers

Finish code	MW	SL	MB	MWB	SLB	MBB
Finish	Matte White	Metallic Silver	Matte Black	Matte White Baffled	Metallic Silver Baffled	Matte Black Baffled
Multiplier	1.00	0.98	0.94	1.00	0.99	0.95

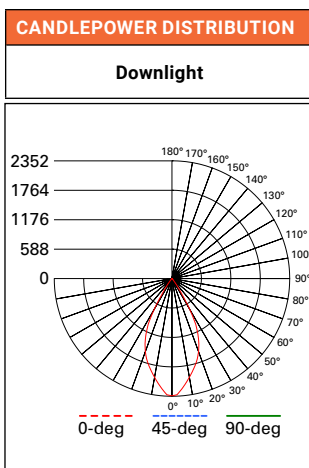
Multipliers may be used to determine relative lumen values with other cone color finishes

## Photometric Data

[View IES files](#)

## 4" ROUND - WIDE FLOOD DISTRIBUTION - MATTE WHITE FINISH, 90 CRI, 3000K

4" ROUND	
Test Number	P887056
Fixture	ML412LS-FL9FS1E-TIR4D-55WFL-TL4RD-MW-1200LM-3000K
Lumens	1478 Lm
Watts	17.6 W
Efficacy	84 Lm/W
SC	0.79
Beam Angle	52°
UGR	11



**CONE OF LIGHT**

MH	FC	L	W
5.5'	77.8	4.2	4.2
7'	48	5.4	5.4
8'	36.8	6.2	6.2
9'	29	7	7
10'	23.5	7.8	7.8
12'	16.3	9.4	9.4

**CANDELA TABLE**

Degrees Vertical	Candela
0	2352
5	2228
15	1801
25	1233
35	207
45	22
55	18
65	14
75	9
85	3
90	0

**ZONAL LUMEN SUMMARY**

Zone	Lumens	% Fixture
0-30	1254	84.8
0-40	1416	95.8
0-60	1452	98.2
0-90	1478	100
90-180	0	0
0-180	1478	100

**LUMINANCE**

Average Candela Degrees	Average 0° Luminance
45	3768
55	3978
65	4203
75	4432
85	4387

Values are nominal for matte white reflectors, other may vary.  
 SC = Spacing Criteria  
 UGR = Unified Glare Rating

## CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.97	1.00	1.03	1.07	1.13

Multipliers may be used to determine other relative CCT values

## Color Finish Multipliers

Finish code	MW	SL	MB	MWB	SLB	MBB
Finish	Matte White	Metallic Silver	Matte Black	Matte White Baffled	Metallic Silver Baffled	Matte Black Baffled
Multiplier	1.00	0.98	0.94	1.00	0.99	0.95

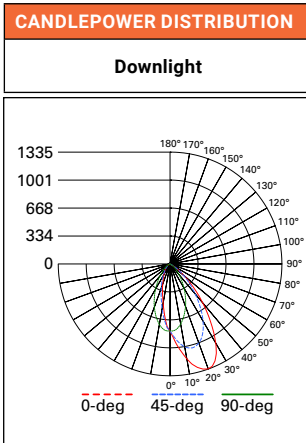
Multipliers may be used to determine relative lumen values with other cone color finishes

## Photometric Data

 View IES files

## WALL WASH DISTRIBUTION - MATTE WHITE FINISH, 90 CRI, 3000K

4" ROUND	
Test Number	P886956
Fixture	ML412LSFL9FS1E-TIR4D25AWW-TL4RWMW-1200LM-3000K
Lumens	1038 Lm
Watts	17.6 W
Efficacy	59 Lm/W
SC	0.81



CANDELA TABLE	
Degrees Vertical	Candela
0	798
5	973
15	1280
25	1278
35	855
45	413
55	123
65	21
75	5
85	0
90	0

ZONAL LUMEN SUMMARY		
Zone	Lumens	% Fixture
0-30	544	52.4
0-40	777	74.8
0-60	1001	96.4
0-90	1038	100
90-180	0	0
0-180	1038	100

LUMINANCE	
Average Candela Degrees	Average 0° Luminance
45	128075
55	46870
65	10689
75	4321
85	0

Values are nominal for matte white reflectors, other may vary.  
SC = Spacing Criteria  
UGR = Unified Glare Rating

## SINGLE UNIT FOOTCANDLES

2.5' from wall (distance from fixture along wall)							
	1.6	1.4	0.7	0.2	0.1	0	0
1	1.6	1.4	0.7	0.2	0.1	0	0
2	16.1	11.5	4.8	1.3	0.5	0.2	0.1
3	26.3	19.3	9.4	3.6	1.2	0.5	0.2
4	23.9	19	10.5	4.7	1.9	0.8	0.4
5	17.6	14.7	9.4	4.9	2.3	1.1	0.5
6	12	10.5	7.4	4.4	2.4	1.2	0.6
7	8.1	7.3	5.5	3.7	2.2	1.3	0.7
8	5.6	5.2	4.1	3	2	1.2	0.7
9	4	3.7	3.1	2.4	1.7	1.1	0.7
10	2.9	2.7	2.4	1.9	1.4	1	0.7

## MULTIPLE UNIT FOOTCANDLES

2.5' from wall (Distance from fixture along wall)				2.5' from wall (Distance from fixture along wall)		
3				4		
1	1.9	2.1	1.9	1.7	1.3	1.7
2	17.4	16.4	17.4	16.5	9.5	16.5
3	29.8	27.9	29.8	27.5	18.7	27.5
4	28.6	29.1	28.6	25.8	21	25.8
5	22.5	24.2	22.5	20	18.7	20
6	16.4	18	16.4	14.4	14.7	14.4
7	11.8	13.1	11.8	10.3	11.1	10.3
8	8.5	9.4	8.5	7.5	8.3	7.5
9	6.3	6.9	6.3	5.6	6.2	5.6
10	4.7	5.1	4.7	4.3	4.7	4.3

## CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.97	1.00	1.03	1.07	1.13

Multipliers may be used to determine other relative CCT values

## Color Finish Multipliers

Finish code	MW	SL	MB	MWB	SLB	MBB
Finish	Matte White	Metallic Silver	Matte Black	Matte White Baffled	Metallic Silver Baffled	Matte Black Baffled
Multiplier	1.00	0.98	0.94	1.00	0.99	0.95

Multipliers may be used to determine relative lumen values with other cone color finishes