

Project		Catalog #		Type	
Prepared by		Notes		Date	



HALO

ML4 Retrofit Downlighting System

A LED fixture fitting in recessed housings suitable for residential and shallow plenums, can be used with round and square open, lens and lens wall wash trims providing various downlight and wall wash distributions.

Typical Applications

Residential • Hospitality • Retail

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Product Certification



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

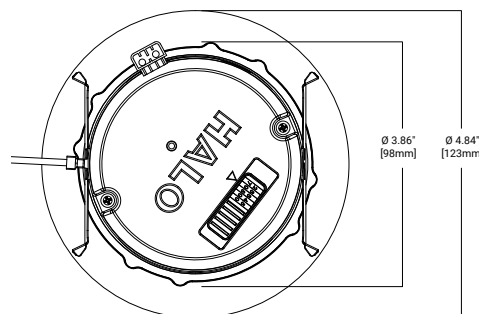
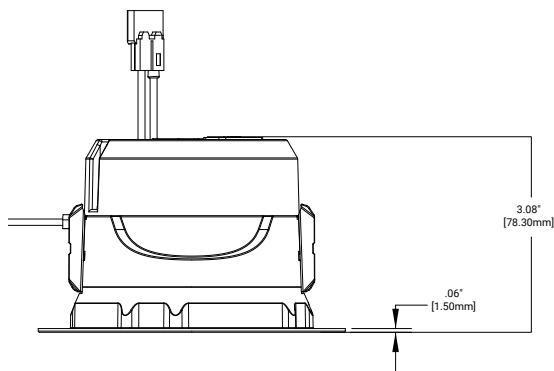
Product Features



Top Product Features

- Field selectable 2700, 3000, 3500, 4000 or 5000K CCT, 90 CRI minimum
- Optional full spectrum color, 95 CRI minimum
- Optional warm dimming, field selectable 2700 – 1800 or 3000 – 1800K CCT ranges
- Fixed lumens of 600, 800 or 1000 lumens
- Field interchangeable 25°, 40°, 55° or wall wash distribution patterns, ships with 40 degree installed
- Installs from below into 4" housing
- 120V LE/TE phase cut or 120-277V 0-10V dimming to 5% with select controls

Dimensional and Mounting Details



[CLICK HERE](#)
additional dimensions

Order Information

SAMPLE ORDER NUMBER: **ML4D10FL9FS1E - TL41RMW**

A complete luminaire consists of a fixture fitting + trim, order separately.

Fixture Fitting

Catalog Number	Description
ML4D10FL9FS1E	4" Retrofit, 1000lms, 5CCT selectable, 90CRI, 40° optic, 120V, LE/TE 5% Dim
ML4D10FL9FS1E010	4" Retrofit, 1000lms, 5CCT selectable, 90CRI, 40° optic, 120-277V 0-10V 5% Dim
ML4D08FL9FS1E	4" Retrofit, 800lms, 5CCT selectable, 95CRI, 40° optic, 120V LE/TE 5% Dim
ML4D06FLD2W1E	4" Retrofit, 600lms, Selectable D2W, 90CRI, 40° optic 120V LE/TE 5% Dim

Accessories

Accessories
<p>TIR4D25NFL = 25° narrow flood optic TIR4D40FL = 40° flood optic TIR4D55WFL = 55° wide flood optic TIR4D25AWW = 25° narrow flood asymmetric wall wash optic TIR45MH12PK = replacement media holder, package of 12 L100 Series = 2.0" lens and filters, see spec sheet</p>


Trims

Shielding

Flange Finish

Trims	Shielding	Flange Finish
TL40R = 3-1/2" conical reflector ⁽¹⁾	2G = Diffuse lens	MW = Matte white reflector and flange
TL41R = 2" round pinhole TL42S = 2" square pinhole	None	MW =Matte white flange MB =Matte black flange BN =Brushed nickel flange ORB =Oil rubbed bronze flange GB =German bronze flange BCu =Brushed copper flange
TL43R = 2" round lens pinhole TL44S = 2" square lens pinhole	2G = Diffuse lens	MWWB = Matte white flange, white lens frame MWBB = Matte white flange, black lens frame MBBB = Matte black flange, black lens frame BNBB = Brushed nickel flange, black lens frame ORBBB = Oil rubbed bronze flange, black lens frame GBBB = German bronze flange, black lens frame BCuBB = Brushed copper, black lens frame
TL45R = 2" round lens wall wash TL46S = 2" square lens wall wash	6G = Linear spread lens	MWWB = Matte white flange, white lens frame MWBB = Matte white flange, black lens frame
Notes	Notes	Notes
(1) TL40R trim provides 1.15" lens regression to ML4 fixture.		

Housings

Housings	
<p>Halo Ultra-shallow LED Housings H245ICAT=4" IC, airtight ultra-shallow new construction housing, LED, 120 - 277V H245RICAT=4" IC, airtight ultra-shallow remodeler housing, LED, 120 - 277V</p> <p>Halo LED Housings H995ICAT=4" IC, airtight shallow new construction housing, LED, 120 - 277V H995RICAT=4" IC, airtight shallow remodeler housing, LED, 120 - 277V</p> <p>Halo Surface Mount Housings HS4R=Surface round, 120-277V HS4S=Surface square, 120-277V</p>	<p>Halo Housings⁽²⁾ H45ICATD010=4" IC, airtight shallow new construction housing, LED, 120-277V, 0-10V dimming H45RICATD010=4" IC, airtight shallow remodeler housing, LED, 120-277V, 0-10V dimming H99TAT=4" Non-IC, airtight shallow new construction housing, E26, 120V H99RTAT=4" Non-IC, airtight shallow remodeler housing, E26, 120V H99ICAT=4" IC, airtight shallow new construction housing, E26, 120V E4TATSB=4" Non-IC, airtight shallow new construction housing, adjustable socket bracket, E26, 120V E4RTATSB=4" Non-IC, airtight shallow remodeler housing, adjustable socket bracket, E26, 120V E4ICATSB=4" Non-IC, airtight shallow new construction housing, adjustable socket bracket, E26, 120V H4NCMF=4" New construction mounting frame</p>  <p>HE26LED Requires Edison Base Adapter for retrofit (order separately)</p>
Notes	
(2) Requires HE26LED Edison Base Adapter for retrofit (order separately).	

Product Specifications

Housing

- Die cast aluminum housing provides passive thermal cooling achieving L70 at 50,000 hours in IC and non-IC applications
- Stainless steel springs hold module securely in the housing, can be removed thru the aperture for service or replacement

LED Array

- Proximity phosphors over chip on board LEDs provide a uniform source with high efficiency and no pixilation
- Available in 90 CRI minimum, R9 greater than 50 and color accuracy within 3 SDCM at end points and 4 SDCM in the middle providing color accuracy and uniformity

Field Selectable

- Field selectable 2700, 3000, 3500, 4000 or 5000K CCT, factory set at 3000K CCT
- Optional full spectrum color, 95 CRI minimum with R1-R15 values ranging from 92 to 100, excellent TM-30 metrics; Rf ranging from 96-98 and Rg >98

VividTune

- D2W™ dim-to-warm option shifts color temperature from 3000 to 1800K CCT or 2700 to 1800K CCT as fixture dims mimicking the black body dimming response of halogen or incandescent lamps

Trims

- Field interchangeable trims are available in 3-1/2" aperture conical and 2-inch round or square pinhole apertures
- Available in a broad range of painted or plated finishes, can be painted in the field to match any décor
- Magnetic attachment holds trim tightly to ceiling and minimizes light leaks
- Conical trim provides 1.15" lens regression to ML4 fixture.

Primary Optic

- Precision molded TIR optic organizes source flux into useful beams without stray lumens in the field
- Low glare, UGR < 17
- Two-piece construction with matte black mounting ring and polarized turn and lock mounting aligns optic to source and minimizes backlight in the housing
- Meets ENERGY STAR® color angular uniformity requirements, color deviation is typically less than 0.004 u' v'
- Available in narrow flood, flood, wide flood and asymmetric wall wash distributions, ships with flood optic factory installed, order alternate distributions or replacements separately

Media

- Integral media holder accepts (2) lens or louver 2" diameter 3.0mm thick color filters, lens or louvers
- Order media separately

Driver

- Integral UNV 120-277V 50/60 Hz constant current driver provides noise free operation and can be replaced in the field
- Continuous, flicker-free dimming from 100% to 5% with select leading or trailing edge 120V phase cut control
- Optional UNV 120-277V 50/60 Hz driver with 0-10V analog dimming from 100% to 5%
- Medium base (E26) to CJT adapter (provided) provides mains connection.

Compliance

- UL Certified US and Canada
- Damp and wet location listed, covered ceilings only and IP65, below the ceiling only with lens trims
- Airtight per ASTM-E283
- 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
- Photometric testing in accordance with IES LM-79-08
- Lumen maintenance projections in accordance with IES LM-80-08 and TM-21-11
- ENERGY STAR® certified, reference Certified Light Fixtures database
- Can be used for State of California Title 24 high efficacy LED compliance under JA8, reference Modernized Appliance Efficiency Database System (MAEDBS) for 2019 JA8 High Efficacy Lighting
- T20 for Std 120V and 120-277V 0-10V modules

Warranty

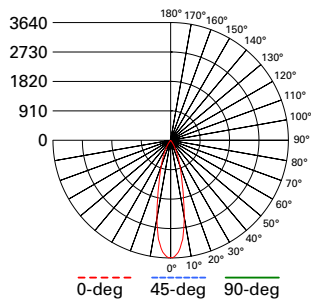
- Five-year limited warranty, consult website for details www.cooperlighting.com

Energy Data

	ML4D10FL9FS1E	ML4D10FL9FS1E010		ML4D08FL9FS1E	ML4D06FLD2W1E
Lumens (nom)	1000	1000	1000	800	600
Input Voltage (VAC)	120	120	277	120	120
Input Current (A)	0.11	0.14	0.11	0.11	0.08
Efficiency (LpW)	81.4	82.9	N/A	66.7	72.4
Inrush Current (A)	3.28	2.2	3.87	3.28	2.24
Inrush Duration (ms)	0.060	0.136	0.132	0.060	0.044
THD	≤ 20%	≤ 20%	≤ 20%	≤ 20%	≤ 20%
PF	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90
T Ambient (C)	-30 to +40	-30 to +40	-30 to +40	-30 to +40	-30 to +40
Sound Rating	≤ 22 dba	≤ 22 dba	≤ 22 dba	≤ 22 dba	≤ 22 dba

Photometric Data

 View IES files

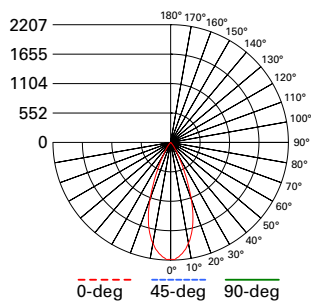


ML410LSN9FS1E - TIR4D25NFL - TL41R_ TL42S_ 3000K
 Spacing criterion:
 (0-180) 0.43 | (90-270) 0.43 | (Diagonal) 0.46
 Beam Angle: 25°
 Field Angle: 56°
 Lumens: 1056
 Input Watts: 12.9 W
 Efficacy: 81.9 LPW
 UGR: 11
 Test Report: P601300

Zonal Lumen	Lumens	% Lumens
0-30	930	88.1
0-40	1023	96.9
0-60	1054	99.8
0-90	1056	100

TM-30-15	Rf = 94
	Rg = 99
CRI/CIE	Ra = 96.4
	R9 = 74

CCT - Range of 2700K- 5000K

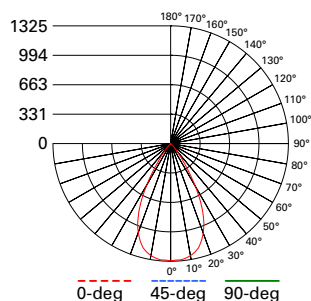


ML410LS9FS1E - TIR4D40FL - TL41R_ TL42S_ 3000K
 Spacing criterion:
 (0-180) 0.67 | (90-270) 0.67 | (Diagonal) 0.63
 Beam Angle: 40°
 Field Angle: 64°
 Lumens: 1050
 Input Watts: 12.9 W
 Efficacy: 81.4 LPW
 UGR: 11
 Test Report: P601290

Zonal Lumen	Lumens	% Lumens
0-30	924	88
0-40	1017	96.9
0-60	1049	99.9
0-90	1050	100

TM-30-15	Rf = 94
	Rg = 99
CRI/CIE	Ra = 96.4
	R9 = 74

CCT - Range of 2700K- 5000K

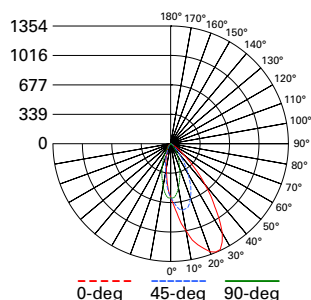


ML410LSW9FS1E - TIR4D55WFL - TL41R_ TL42S_ 3000K
 Spacing criterion:
 (0-180) 0.91 | (90-270) 0.91 | (Diagonal) 0.84
 Beam Angle: 56°
 Field Angle: 79°
 Lumens: 1062
 Input Watts: 12.9 W
 Efficacy: 82.3 LPW
 UGR: 12
 Test Report: P601310

Zonal Lumen	Lumens	% Lumens
0-30	846	79.7
0-40	1021	96.2
0-60	1062	100
0-90	1062	100

TM-30-15	Rf = 94
	Rg = 99
CRI/CIE	Ra = 96.4
	R9 = 74

CCT - Range of 2700K- 5000K



ML410LSAW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K
 Spacing criterion:
 (0-180) 1.31 | (90-270) 0.61 | (Diagonal) 0.81
 Beam Angle: 25°
 Tilt Angle: 23°
 Lumens: 625
 Input Watts: 12.9 W
 Efficacy: 48.4 LPW
 Test Report: P601275

Zonal Lumen	Lumens	% Lumens
0-30	389	62.2
0-40	525	84.1
0-60	618	98.9
0-90	625	100

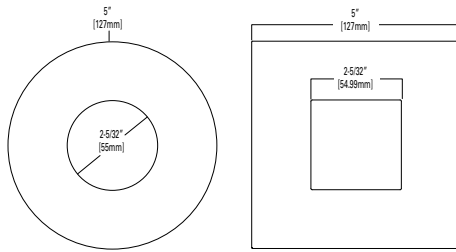
TM-30-15	Rf = 94
	Rg = 99
CRI/CIE	Ra = 96.4
	R9 = 74

CCT - Range of 2700K- 5000K

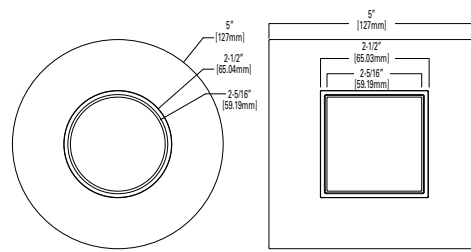


Dimensional and Mounting Details

Lens Pinhole Downlight



Lens Wall Wash



Lens Conical Reflector

