

Project		Catalog #		Type	
Prepared by		Notes		Date	



HALO

ML Flex Series - Canless LED Adjustable Downlighting 4-inch Round & Square Adjustable

The ML Flex Series is a set of striking, high-performance adjustable fixtures available in three sizes (2, 3, and 4-inch). ML Flex Canless adjustable luminaires share a sleek design with reduced glare, 355° rotation and up to a 35° tilt angle. The ML Flex adjustables provide quality light with multiple field replaceable TIR optics to provide the beam angle you want virtually anywhere. Using round and square magnetic trims, makes the ML Flex flexible and perfect for residential, hospitality, retail, and healthcare installations.

The ML Flex 4-inch fixtures are offered with an array of adjustable smooth trims colors and round or square. Control beam angles with interchangeable 25°, 40°, and 55° optics. Customize lighting with selectable lumens and colors with flicker-free dimming to less than 5% in phase cut (120V) or 0-10V (120-277V) versions.

Typical Applications Residential, Hospitality, Healthcare, Retail

Interactive Menu

- Order Information page 3
- Product Specifications page 6
- Energy Data page 7
- Photometric Data page 8
- Product Warranty



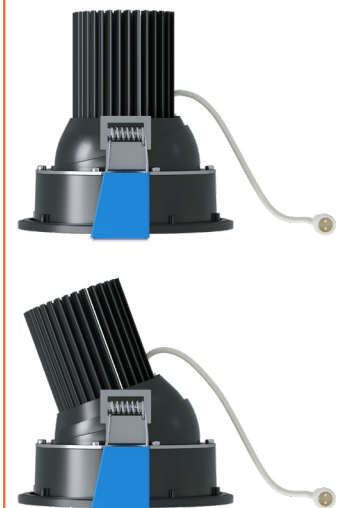
Can be used to comply with California Title 24 High Efficiency requirements.¹
Certified to California Appliance Efficiency Database under JA8.



Top Product Features

- 4" Canless LED Adjustables mount directly to the ceiling (no housing required)
- Use with canless mounting frames for new construction installations
- **Trims:** Flanged adjustable trims in smooth multiple colors and round or square
- **Lens:** Frosted lens that is field removable
- **Field-interchangeable TIR optics:** 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 = 600/800/1000 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, IP 64 rated
- 50,000 hrs of maintenance-free operation
- 5-year warranty

Up to a 35° Tilt Angle

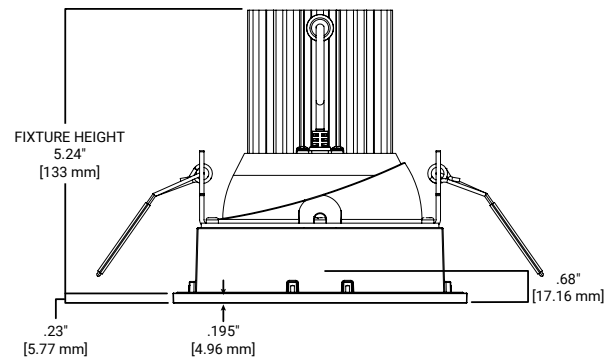
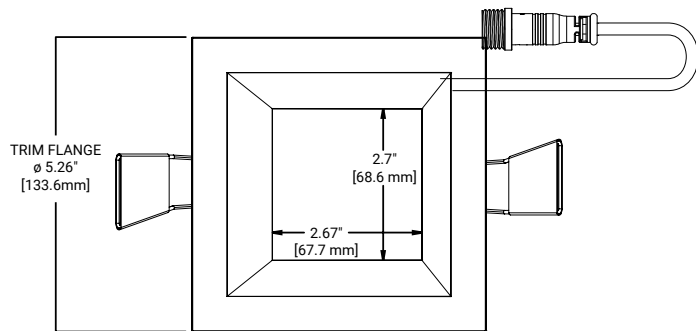
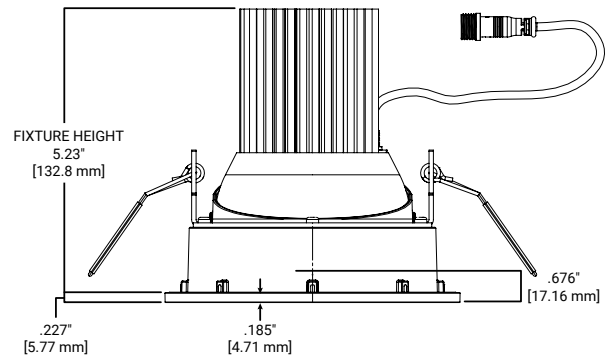
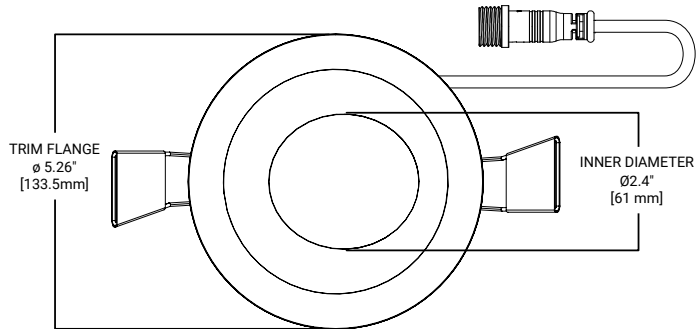


Dimensional and Mounting Details

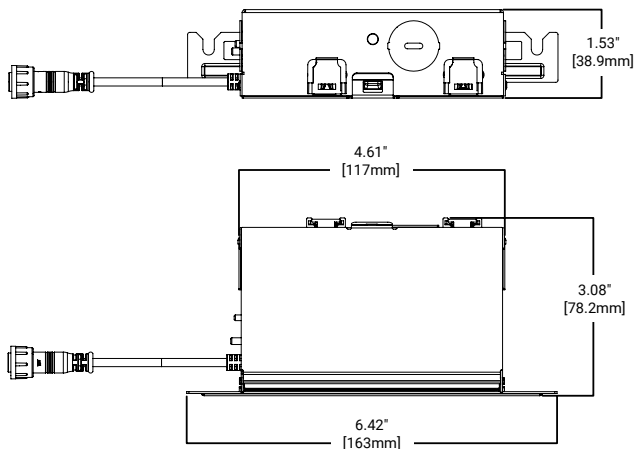
4" ADJUSTABLE

Cut Out (Templates included in instructions and packaging)

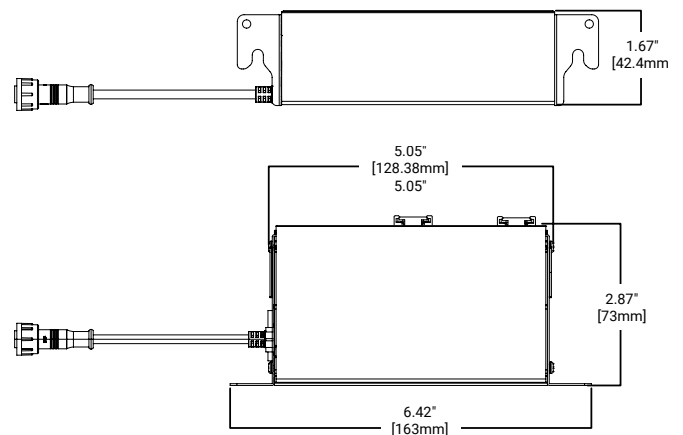
- 4" Round Fixture = 4-3/4" [120.7mm] circle / hole saw
- 4" Square Fixture = 4-3/4" [120.7mm] square



5-color SeleCCTable™ J-Box & Driver



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



Order Information

Stock: 4" ML Flex Adjustable Fixtures

Stock ML Flex fixtures come fully assembled and include the LED light engine, 40° TIR optic, removable frosted 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	CRI / CCT	Dimming / Driver	Trim Finish
ML4ALSFS1ERMW	4" Round Smooth LED Adjustable	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte White
ML4ALSFS1ERMB	4" Round Smooth LED Adjustable	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black
ML4ALSFS1ESMW	4" Square Smooth LED Adjustable	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte White
ML4ALSFS1ESMB	4" Square Smooth LED Adjustable	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% Phase Cut LE/TE Dimming, 120V 60Hz	Matte Black
ML4ALSD2W1ERMW	4" Round Smooth LED Adjustable	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
ML4ALSD2W1ERMB	4" Round Smooth LED Adjustable	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

0–10V, Universal Voltage 120–277V (Commercial)

Catalog Number	Description	Lumens	CRI / CCT	Dimming / Driver	Trim Finish
ML4ALSFSE010RMW	4" Round Smooth LED Canless Downlight	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% 0–10V Dimming, UNV 120–277V 50Hz/60Hz	Matte White
ML4ALSFSE010RMB	4" Round Smooth LED Canless Downlight	Lumen Selectable 600/800/1000 LM	90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K	≤5% 0–10V Dimming, UNV 120–277V 50Hz/60Hz	Matte Black

Made to Order: 4" ML Flex Adjustable Fixtures

Made to order ML Flex Adjustable fixtures include the LED light engine, 40° TIR optic, removable frosted lens, remote driver / junction box, and interchangeable trim.

Optional new construction mounting frames, interchangeable TIR optics, and driver-to-light engine extension cables are also available.

Module	Lumens (nominal) ⁽¹⁾	CRI/CCT	Driver	Shape	Trim Type	Trim Color
ML4A = 4" LED Adjustable Light Engine	LS = Lumen Selectable 600/800/1000 lm	FS = 90+ CRI, 5-color Field-SeleCCTable™ CCT: 2700/3000/3500/4000/5000K D2W = 90+ CRI, Field-SeleCCTable™ Dim-to-Warm 3000-to-1800K or 2700-1800K ^{(1) (2)}	1E = ≤5% Phase Cut LE/TE Dimming, 120V 60Hz E010 = ≤5% 0–10V Dimming, UNV 120–277V 50Hz/60Hz ⁽³⁾	R = Round S = Square	Blank = Smooth Magnetic Trim	MW = Paintable Matte White SL = Silver MB = Matte Black
Notes	Notes	Notes	Notes	Notes	Notes	Notes
	1. D2W versions are 600 lumens (not lumen selectable)	1. D2W versions are 600 lumens (not lumen selectable) 2. D2W versions are not compatible with E010 driver option	3. D2W versions are not compatible with E010 driver option			

Order Information

Optional Accessories

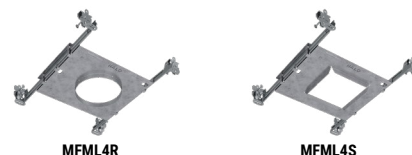
Catalog Number	Description
Optics	
TIR4D25NFL	25° narrow flood optic (fits 3" & 4" ML Flex fixtures)
TIR4D40FL	40° flood optic (fits 3" & 4" ML Flex fixtures)
TIR4D55WFL	55° wide flood optic (fits 3" & 4" ML Flex fixtures)
TIR45MH12PK	Replacement media holder – 12-pack (fits 3" & 4" ML Flex fixtures)

Media Optics	
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.

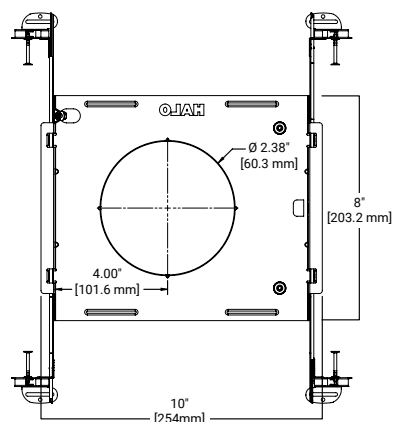
Mud-in Ceiling Mounts	
These installation plaster-frame accessories allow the fixture's flange to recess flush with the ceiling surface for a clean ceiling.	
4MFMR	4" Round Flushmount Mud-in Ring (coming soon)
4MFMS	4" Square Flushmount Mud-in Ring (coming soon)

Extension Cables	
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

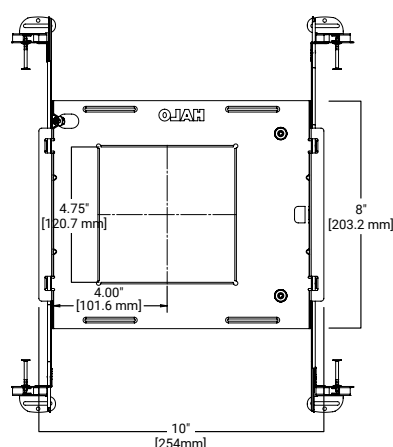
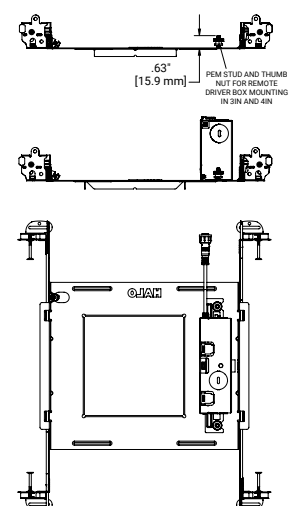
ML Flex New Construction Mounting Frames	
Designed to ensure the proper placement and alignment of canless LED downlights in new construction projects. It features adjustable hanger bars, integrated thumb screws, and pre-installed nails for easy installation and compliance with local code requirements.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



MLPFAS4M4R



MLPFAS4M4S

DRIVER MOUNTING METHOD
FOR 3IN AND 4IN

Summary

	2"	3"	4"
CCT	2700K/3000K/3500K/4000K/5000K		
Warming Dimming (option)	1800K-3000K or 1800K-2700K		
Lumens	200/400/550	300/500/750	600/800/1000
Optics	25°/40°/55° TIR Optics		
Maximum Tilt Angle	25°	30°	35°
Wattage	9W	11.5W	16W
Input Voltage	120V or 120V-277V		
Dimming	Phase 120V or 0-10V 120V-277V		
Warm Dimming	1800K-3000K		
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 Square Smooth		
Ceiling Applications	Flange Flushmount Mud-in Mounting Frames		
Standards	UL/ Title 24 JA8 ⁽¹⁾		
Ratings	Wet location, Airtight when lens is installed (default)		
LED Lifetime	L70 to 50,000 hrs		
Warranty	5 years		

Product Specifications

Construction

- Magnetic Polycarbonate trims for Adjustables
- Regressed painted smooth trims
- High impact lens provides airtite and wet location

Module

- The LED canless adjustable consists of a 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

Optics

- Field installable TIR optics with a smooth beam, no media necessary
- Color and softening lenses are options for the 3" and 4" adjustable.
- Available in 25° spot, 40° flood, 55° wide flood optics
- Up to 1 optical media accessories can be used in the 3" and 4" adjustable while still maintaining maximum tilt angle

LED Array

- LED COB provides a uniform light source with high efficiency and no pixilation
- 90+ CRI minimum, R9 greater than 50
- Color accuracy is 3 SDCM at the end points and 4 in the middle providing 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
- 3" and 4" fixtures - (4) ½" conduit pry-outs
- 2" fixtures – (3) 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 accept
 - 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 connections

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
- 3/8" 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 Adjustable meets Airtight ASTM-E283 requirements with included gasket and lens included in trim (default)

Trim Options

- Magnetic Round and Square polycarbonate trims are available in multiple colors
 - Matte White
 - Satin Nickel
 - Matte Black
- Trim cut off to reduce glare

Compliance

- cULus certified for US and Canada
- Wet location listed with included lens
- 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⁽¹⁾
- 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⁽¹⁾, 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

Energy Data

ML4 Triac (High Lumen)	120V
Input Power (W)	12.88
Input Current (A)	0.109
PF	>0.9
THDi (%)	< 20
Inrush Current (A)	2.8
Inrush Duration (μs)	55
Sound (dBA)	< 22

ML4 Triac (Mid Lumen)	120V
Input Power (W)	10.7
Input Current (A)	0.091
PF	>0.9
THDi (%)	< 20
Inrush Current (A)	2.7
Inrush Duration (μs)	58
Sound (dBA)	< 22

ML4 Triac (Low Lumen)	120V
Input Power (W)	7.72
Input Current (A)	0.067
PF	>0.9
THDi (%)	< 20
Inrush Current (A)	2.6
Inrush Duration (μs)	56
Sound (dBA)	< 22

ML4 D2W (High Lumen)	120V
Input Power (W)	8.39
Input Current (A)	0.072
PF	> 0.9
THDi (%)	< 20
Inrush Current (A)	2.2
Inrush Duration (μs)	39
Sound (dBA)	< 22

ML4 0-10V (High Lumen)	120V	277V
Input Power (W)	12.8	12.78
Input Current (A)	0.106	0.047
PF	>0.9	> 0.9
THDi (%)	< 20	< 20
Inrush Current (A)	0.58	1.12
Inrush Duration (μs)	12	14
Sound (dBA)	< 22	< 22

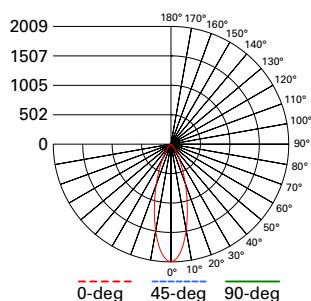
ML4 0-10V (Mid Lumen)	120V	277V
Input Power (W)	10.99	11.39
Input Current (A)	0.091	0.043
PF	>0.9	> 0.9
THDi (%)	< 20	< 20
Inrush Current (A)	0.61	1.08
Inrush Duration (μs)	15	13
Sound (dBA)	< 22	< 22

ML4 0-10V (Low Lumen)	120V	277V
Input Power (W)	8.88	9.34
Input Current (A)	0.074	0.036
PF	>0.9	> 0.9
THDi (%)	< 20	< 20
Inrush Current (A)	0.58	1.15
Inrush Duration (μs)	15	17
Sound (dBA)	< 22	< 22

Photometric Data



ML4ALSFL9FS1E with 0° Tilt

**ML4ALSFL9FS1E**

Optic: TIR4D25NFL

Trim: TL4RDMW

Spacing criterion: (0-180) 0.52
(90-270) 0.52
(Diagonal) 0.56

CCT: 3000K

Lumens: 860 Lm

Input Watts: 13 W

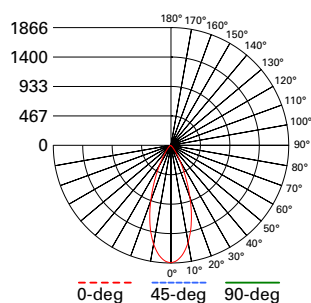
Efficacy: 66.1 Lm/W

Test Report: P990868

Zonal Lumen	Lumens	% Lumens
0-30	676	78.6
0-40	778	90.5
0-60	842	98
0-90	860	100

TM-30-15	Rf = 94.4
	Rg = 100.8
CRI/CIE	Ra = 96.1
	R9 = 74.1

Candela Table	
Angle	0°
0	2009
5	1857
15	1083
25	456
35	158
45	54
55	22
65	12
75	5
85	0
90	0

**ML4ALSFL9FS1E**

Optic: TIR4D40FL

Trim: TL4RDMW

Spacing criterion: (0-180) 0.64
(90-270) 0.64
(Diagonal) 0.64

CCT: 3000K

Lumens: 993 Lm

Input Watts: 13 W

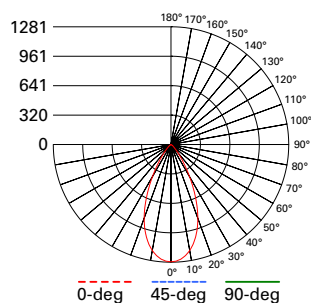
Efficacy: 76.4 Lm/W

Test Report: P990898

Zonal Lumen	Lumens	% Lumens
0-30	781	78.6
0-40	901	90.8
0-60	971	97.9
0-90	993	100

TM-30-15	Rf = 94.4
	Rg = 100.8
CRI/CIE	Ra = 96.1
	R9 = 74.1

Candela Table	
Angle	0°
0	1866
5	1787
15	1272
25	582
35	183
45	59
55	25
65	15
75	6
85	0
90	0

**ML4ALSFL9FS1E**

Optic: TIR4D55WFL

Trim: TL4RDMW

Spacing criterion: (0-180) 0.79
(90-270) 0.79
(Diagonal) 0.77

CCT: 3000K

Lumens: 950 Lm

Input Watts: 13 W

Efficacy: 73.1 Lm/W

Test Report: P990938

Zonal Lumen	Lumens	% Lumens
0-30	693	72.9
0-40	845	88.9
0-60	928	97.7
0-90	950	100

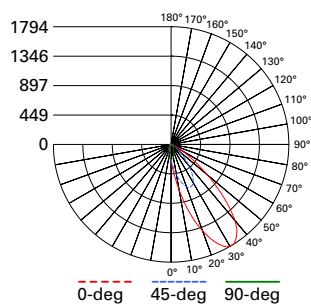
TM-30-15	Rf = 94.4
	Rg = 100.8
CRI/CIE	Ra = 96.1
	R9 = 74.1

Candela Table	
Angle	0°
0	1281
5	1256
15	1043
25	633
35	234
45	71
55	27
65	15
75	6
85	0
90	0

Photometric Data

[View IES files](#)

ML4ALSFL9FS1E with 35° Tilt



ML4ALSFL9FS1E

Optic: TIR4D40FL

Trim: TL4RDMW

Spacing criterion: (0-180) 2.28
(90-270) 0.7
(Diagonal) 1.37

CCT: 3000K

Lumens: 860

Input Watts: 13 W

Efficacy: 66.2 Lm/W

Test Report: P990903

Zonal Lumen	Lumens	% Lumens
0-30	325	37.8
0-40	566	65.8
0-60	824	95.8
0-90	860	100

TM-30-15	Rf = 94.4
	Rg = 100.8
CRI/CIE	Ra = 96.1
	R9 = 74.1

Candela Table			
Angle	0°	45°	90°
0	236	236	236
5	421	346	226
15	1071	599	170
25	1671	718	102
35	1734	564	55
45	1118	273	29
55	382	85	20
65	67	22	15
75	3	3	5
85	0	1	2
90	0	0	0

CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.96	1.00	1.03	1.05	1.10

Multipliers may be used to determine other relative CCT values

Color Finish Multipliers

Finish code	MW	SL	MB
Finish	Matte White	Metallic Silver	Matte Black
Multiplier	1.00	1.00	0.97

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