

HALO



SustainableLEDesign™

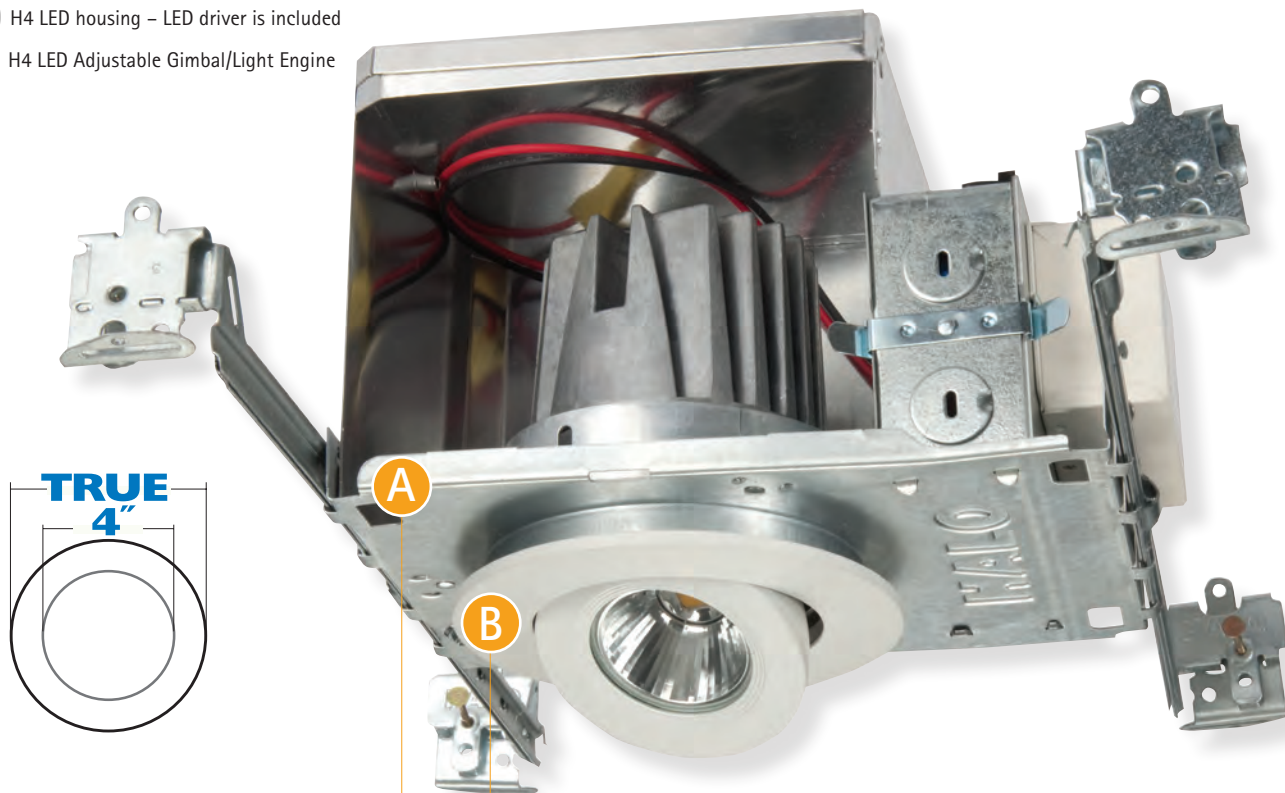
Halo H4 LED Collection

- Downlight Trims
- Adjustable Gimbals
- Square Downlight Trims
- Wall Wash Downlight Trims

COOPER Lighting

The Halo H4 LED Adjustable Gimbals consist of two parts:

- A) H4 LED housing – LED driver is included
- B) H4 LED Adjustable Gimbal/Light Engine



A LED Housing

- H4 - 4" nominal aperture housings designed for H4 LED light engines, incorporating the popular Halo customer-friendly installation features
- LED Driver (power supply) integrated in the housing for optimized lumen delivery and superior thermal management of the LED package

B LED Adjustable Gimbal / Light Engine

- 4" Round and Square adjustable gimbal style trims combined with LED light engine
- 4" LED Gimbal trim with integrated LED light engine offers 35° tilt adjustment
- Color temperature options: 2700°K, 3000°K, 3500°K, 4000°K
- 25° beam reflector included with interchangeable 35° and 50° reflectors available
- Gimbal trim finish options: White, Satin Nickel and Tuscan Bronze
- Specially designed heat sink features durable die cast aluminum construction that conducts heat away from the LED package to ensure extended life of the LED
- LED package consists of an engineered array of multiple LEDs



QUALIFIED AND COMPLIANT WITH DESIGNATED LED ADJUSTABLE GIMBAL / LIGHT ENGINES*

*Refer to www.cooperlighting.com for product specification sheets, and the qualified selection of H4 LED Light Engines and Trims.

HALO LED H4 COLLECTION – 4" LED ADJUSTABLE GIMBALS



ELG4058xxSN
Satin Nickel



ELG4058xxTBZ
Tuscan Bronze



ELG4058xxWH
White

xx
 27 = 2700°K
 30 = 3000°K
 35 = 3500°K
 40 = 4000°K

4" LED Adjustable Gimballs

- 4" Round and Square gimbal style trims combined with LED light engine
- 35 degree tilt
- Optics are MR16-like with interchangeable reflectors 25°, 35°, 50° beam
- 25° beam reflector included in all adjustable gimbal trims
- Optional reflector kit with 25°, 35°, 50° reflectors, model: TL412RK
- Four Correlated Color Temperatures available: 2700°K, 3000°K, 3500°K, 4000°K
- Gimbal trim finishes include White, Satin Nickel and Tuscan Bronze
- Compatible with all H4 LED Housings
- Front-loading, snap-in media and reflector cover
- Holds one lens media (replace the included clear glass lens)



25° Reflector (Included)

Optional Gimbal Reflector Kit – TL412RK

TL412RK includes the following reflectors:

- 25° Reflector
- 35° Flood Reflector
- 50° Wide Flood Reflector



25° Reflector (Included)



35° Flood Reflector

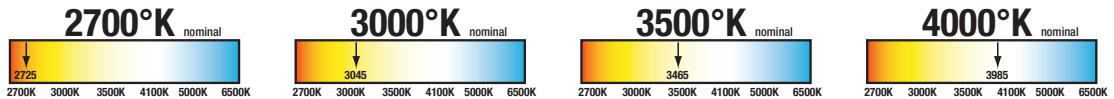


50° Wide Flood Reflector

HALO LED H4 COLLECTION – 4" LED ADJUSTABLE GIMBALS



Trim Finish – Color Identification



Style	Trim Finish	2700°K nominal		3000°K nominal		3500°K nominal		4000°K nominal	
		Model Number	Model Number	Model Number	Model Number	Model Number	Model Number		
Round	White	ELG405827WH	ELG405830WH	ELG405835WH	ELG405840WH				
	Satin Nickel	ELG405827SN	ELG405830SN	ELG405835SN	ELG405840SN				
	Tuscan Bronze	ELG405827TBZ	ELG405830TBZ	ELG405835TBZ	ELG405840TBZ				
Square	White	ELSG405827WH	ELSG405830WH	ELSG405835WH	ELSG405840WH				
	Satin Nickel	ELSG405827SN	ELSG405830SN	ELSG405835SN	ELSG405840SN				
	Tuscan Bronze	ELSG405827TBZ	ELSG405830TBZ	ELSG405835TBZ	ELSG405840TBZ				

Optional Lens Media (ordered separately)

One lens media may be used in place of clear lens. For round and square gimbals.

Optical Lenses

- L110 Diffuse Sand Blasted Lens
- L111 Soft Focus Textured Lens
- L113 Prismatic Lens
- L115 Linear Spread Lens

Dichroic Color Films

- L114 UV Filter
- L120 Red
- L121 Amber
- L122 Yellow
- L123 Green
- L124 Daylight
- L125 Blue
- L127 Cosmetic Color Filters
- L130 Yellow

Optional Accessory Reflector Kit

(ordered separately)

TL412RK includes:

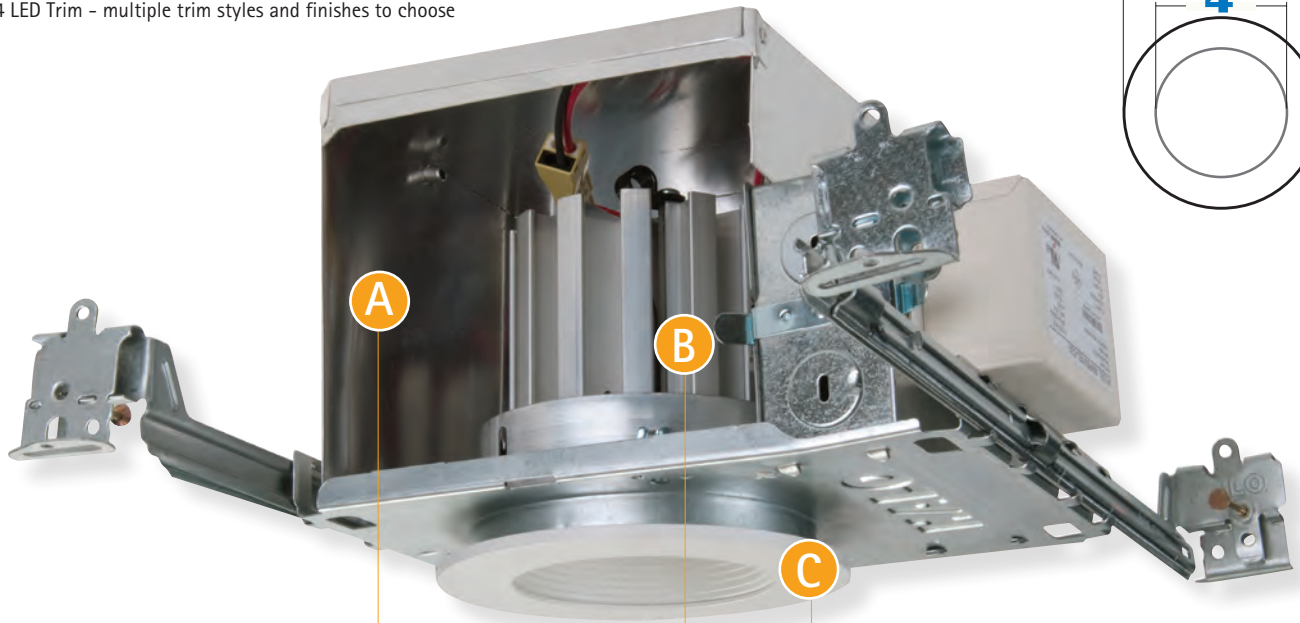
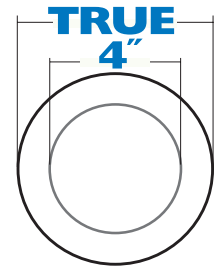
- 25° reflector (included)
- 35° reflector
- 50° reflector

TL412RK is for use with ELGxx and ELSGxx Gimbals only.

HALO LED H4 COLLECTION – 4" LED DOWNLIGHTS

The Halo H4 LED Downlights consist of three parts:

- A) H4 LED housing – LED driver is included
- B) H4 LED Light Engine – four color temperatures to choose
- C) H4 LED Trim – multiple trim styles and finishes to choose



A LED Housing

- H4 - 4" nominal aperture housings designed for H4 LED light engines, incorporating the popular Halo customer-friendly installation features
- LED Driver (power supply) integrated in the housing for optimized lumen delivery and superior thermal management of the LED package

B LED Light Engine

- H4 -Specially designed heat sink to ensure extended life of the LED package
- Heat sink features durable die-cast and extruded aluminum construction that conducts heat away from the LED package
- LED package is an engineered array of multiple LEDs
- Color temperature options: 2700°K, 3000°K, 3500°K, 4000°K

C LED Trim

- H4 LED downlight trims are available in open or regressed Solite® lens models with multiple reflector and baffle styles
- H4 LED downlight trim selection also includes square trims with square baffles and regressed Solite® lenses
- Precision trim designs and materials provide high-quality fit, form and finish
- Wide selection of 4" LED trim options allow Halo H4 LED to be used in a variety of interior spaces

Halo H4 LED downlights provide light output and distribution comparable to and exceeding that of traditional sources used in small aperture downlights, such as 50W PAR20 halogen lamp, 50W R20 Incandescent lamp, or 13W and 18W Compact Fluorescent luminaires. H4 LED provides excellent color rendering and superior optical design with smooth beam distribution.



H4 LED can be a replacement for



QUALIFIED AND COMPLIANT WITH DESIGNATED LED LIGHT ENGINES AND TRIMS*

*Refer to www.cooperlighting.com for product specification sheets, and the qualified selection of H4 LED Light Engines and Trims.

Halo LED H4 Trims Selection

Multiple 4" baffle and reflector options allow the Halo H4 LED recessed downlight to be used in a variety of interior spaces. Choose the desired reflector finish and trim style to meet the needs of the application.

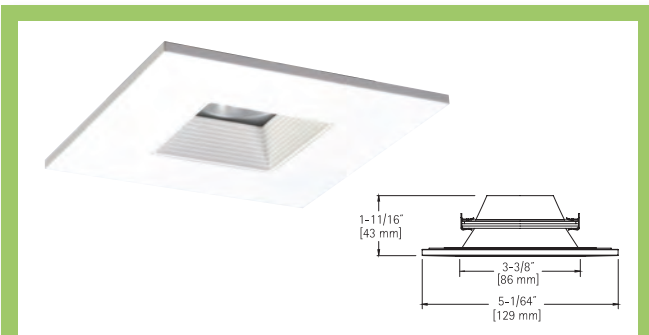


4" LED Square Downlight Baffle Trims

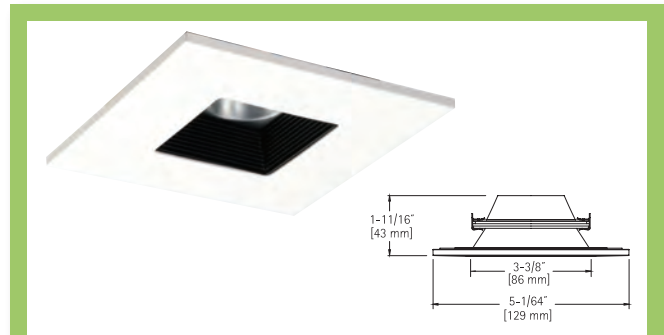
Wet Location listed for Shower Applications



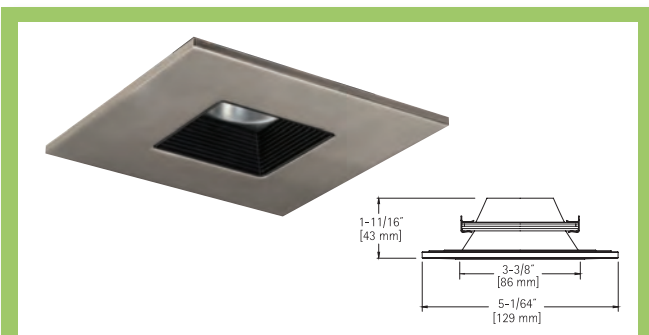
- Square trims fit standard (round) EL4 series downlight Light Engines
- Square trim is same O.D. as Halo 4" family
- Square step baffle for controlled aperture brightness
- Regressed Solite® glass lens
- Wet Location shower rating
- Precision formed aluminum baffles with die-cast trim rings for high-quality fit and finish
- Trim gasket provides AIR-TITE™ seal, and compliance where local codes require a gasket on lensed shower-rated trims
- 4" Square Lensed Trim models:
 - White / White Baffle - Model: TLS408WHWB
 - White / Black Baffle - Model: TLS408WHBB
 - Satin Nickel / Black Baffle - Model: TLS408SNBB
 - Tuscan Bronze / Black Baffle - Model: TLS408TBZBB



TLS408WHWB
Square Baffle Trim with Solite® Regressed Lens,
White Baffle, White Ring



TLS408WHBB
Square Baffle Trim with Solite® Regressed Lens,
Black Baffle, White Ring



TLS408SNBB
Square Baffle Trim with Solite® Regressed Lens,
Black Baffle, Satin Nickel Ring

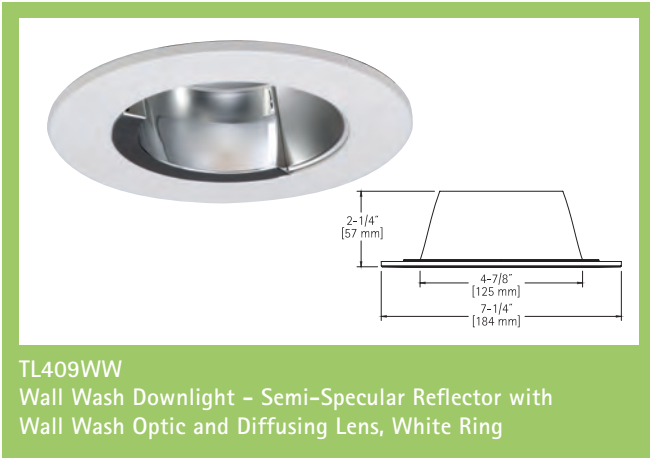


TLS408TBZBB
Square Baffle Trim with Solite® Regressed Lens,
Black Baffle, Tuscan Bronze Ring

4" LED Wall Wash Downlight Trims

- Wall wash optics with downlight performance
- Two downlight reflector finish options: Semi-Specular Clear and White
- Precision formed aluminum reflectors with die-cast trim rings for high-quality fit and finish
- High-reflectance vacuum metalized specular wall wash "Kick" reflector for high-angle vertical illumination

- Polymer diffusing lens for smooth beam
- Compatible with EL4 Series Downlight Light Engines
- Two downlight reflector options:
 - Semi-Specular Clear Reflector – Model: TL409WW
 - White Reflector – Model: TL409WHWW



4" LED Polymer Shower Trim

- Polymer (plastic) - White baffle and ring
- Prismatic clear polymer lens
- Non-Electrically conductive "dead front"

- Non-Corrosive front
- Wet Location, shower rated
- Model: TL422PS



Halo LED H4 Trim Features

- True 4”- Trim designs and dimensions match Halo 4” H99 and H1499 series for a consistent, true 4” family
- Precision formed aluminum reflectors and baffles with die-cast trim rings for high-quality fit and finish
- Standard trim ring provides clearance for remodeler flange and gasket
- Trim gasket provides AIR-TITE™ seal, and compliance where local codes require a gasket on lensed shower-rated trims
- Accessory die-cast trim rings in designer finishes – mix and match with baffles and reflectors
- Solite® lensed trims offer high-clarity glass lenses for high-lumen transmission along with a subtle diffusion of source brightness
- Solite® lensed models are Wet Location listed for Shower Applications
- H4 LED Trims offer ENERGY STAR® Qualification when used with designated Halo H4 LED Light Engines*
- H4 LED Trims can be used to meet State of California Title 24 and International Energy Conservation Code – IECC High Efficacy requirements when used with designated Halo H4 LED Light Engines*

*Refer to www.cooperlighting.com – HALO web page for product specification sheets, and the qualified selection of H4 LED Light Engines and Trims

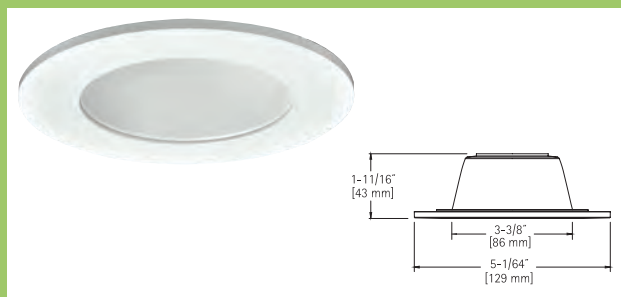
Open Reflector and Baffle Trims



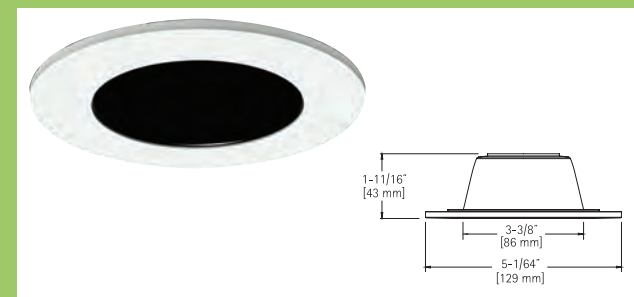
TL400SC
Specular Clear Reflector, White Trim Ring



TL400H
Haze Reflector, White Trim Ring

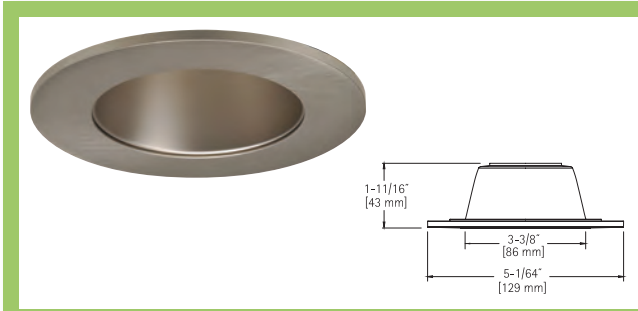


TL400WH
White Reflector, White Trim Ring

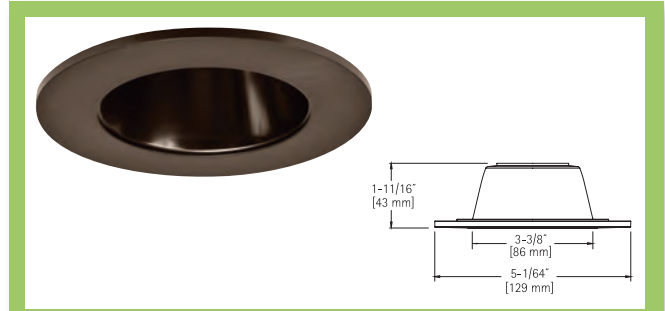


TL400SBK
Specular Black Reflector, White Trim Ring

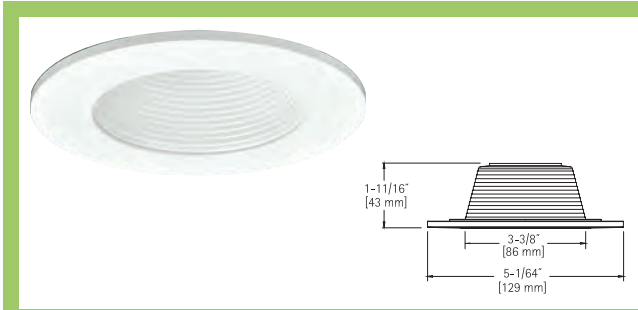
Open Reflector and Baffle Trims



TL400SN
Satin Nickel Reflector, Satin Nickel Trim Ring



TL400TBZ
Tuscan Bronze Reflector, Tuscan Bronze Trim Ring



TL401WB
White Baffle, White Trim Ring



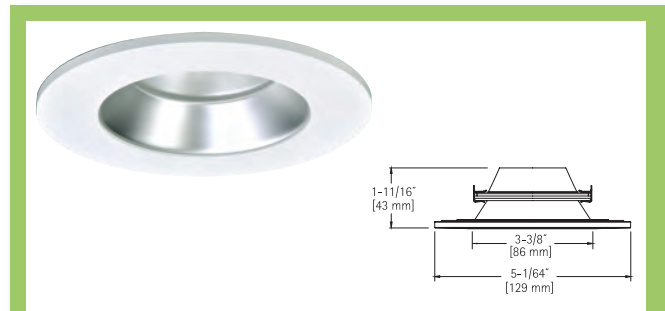
TL401BB
Black Baffle, White Trim Ring

Solite® Regressed Lens Reflector and Baffle Trims

Wet Location listed for Shower Applications



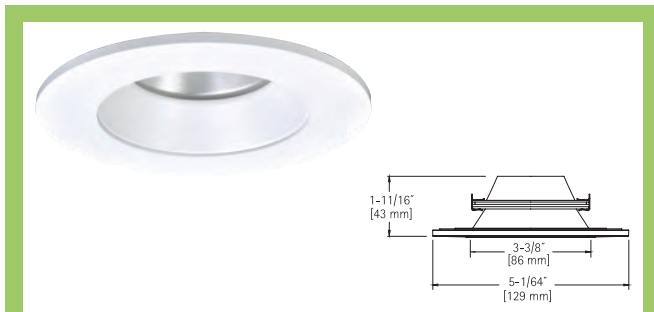
TL402SCS
Specular Clear Reflector with Solite® Regressed Lens, White Trim Ring



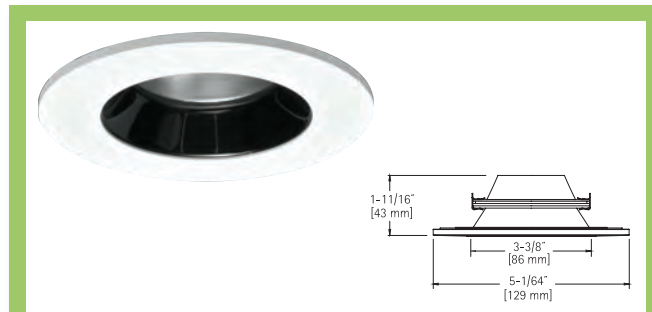
TL402HS
Haze Reflector with Solite® Lens, White Trim Ring

Solite® Regressed Lens Reflector and Baffle Trims

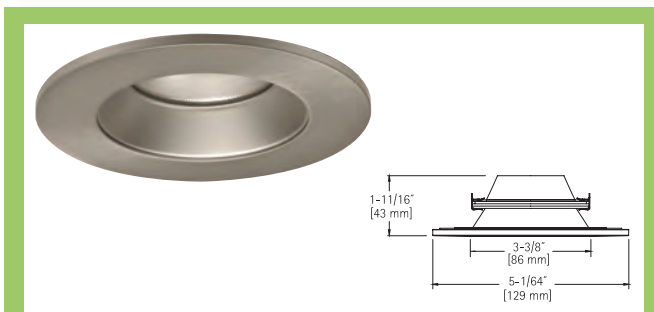
Wet Location listed for Shower Applications



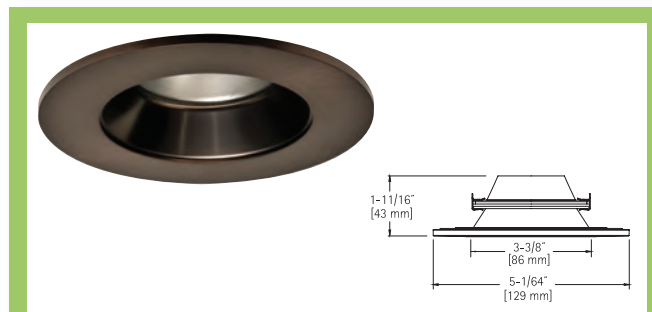
TL402WHS
White Reflector with Solite® Lens, White Trim Ring



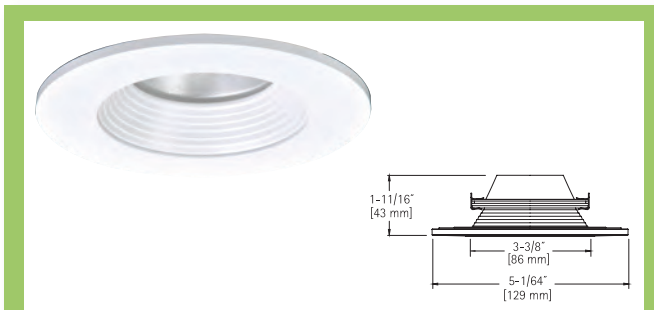
TL402SBKS
Specular Black Reflector with Solite® Lens, White Trim Ring



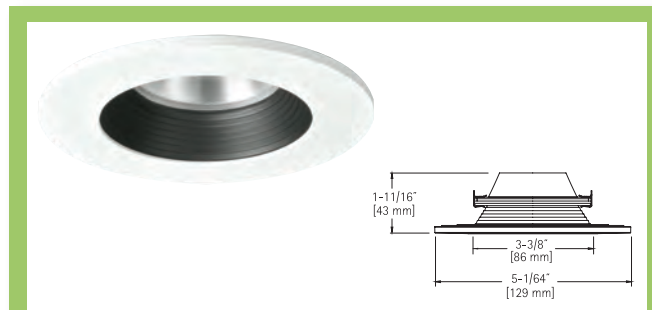
TL402SNS
Satin Nickel Reflector with Solite® Lens, Satin Nickel Trim Ring



TL402TBZS
Tuscan Bronze Reflector with Solite® Lens, Tuscan Bronze Trim Ring



TL403WBS
White Baffle with Solite® Lens, White Trim Ring



TL403BBS
Black Baffle with Solite® Lens, White Trim Ring

Halo LED H4 Designer Trim Rings



TRM400

Designer Trim Rings

- For use with TL4x round downlight trims only
- Optional accessory
- Die-cast trim ring
- Thin Profile provides subtle ceiling appearance (0.120" at OD and 0.180" at ID)

TRM400PC	Polished Chrome
TRM400BK	Black
TRM400WH	White
TRM400SN	Satin Nickel
TRM400TBZ	Tuscan Bronze

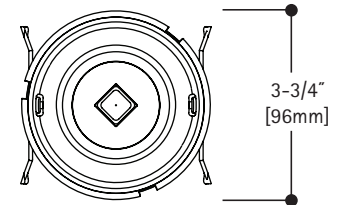
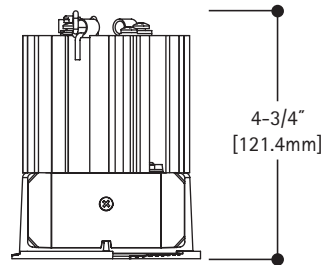
HALO LED H4 COLLECTION – 4” LED LIGHT ENGINES

Halo LED H4 Light Engine Features

- LED package consisting of an engineered array of multiple LEDs to create one virtual source, for a productive “cone of light”
- Specially designed LED and heat sink integration to ensure extended life of the LED package to well over the L70/50 - 70% lumen maintenance/50,000 hour rating
- Heat sink features durable die-cast and extruded aluminum construction that conducts heat away from the LED package and keeps LED junction temperatures at specified level
- LED emits no ultraviolet and only minimal infrared wave lengths
- Does not emit heat like traditional light sources
- Designed for interchangeable trim choices; select from multiple reflector, baffle and lens trim options
- H4 LED Light Engines offer ENERGY STAR® Qualification when used with designated Halo H4 LED Trims*
- H4 LED Light Engines can be used to meet State of California Title 24 and International Energy Conservation Code – IECC High Efficacy requirements when used with designated H4 LED Trims*
- RoHS Compliant



QUALIFIED AND COMPLIANT WITH DESIGNATED LED LIGHT ENGINES AND TRIMS



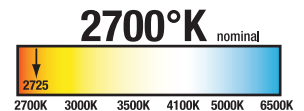
Halo LED H4 Light Engine Performance

- 550 design lumens*
- 534 - 700 lumens depending upon color temperature and trim selected*
- Four Correlated Color Temperature options
- 14 Watts (Driver integral to housing)
- Over 80 CRI
- L70/50 - 70% Lumen Maintenance / 50,000 hours
- Up to 50 Lumens per Watt

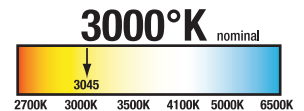
*Design lumens are a general guide based on nominal lumens delivered with a White Baffle or White Reflector. Trim type and color temperature determines the delivered lumen value. Example: TL400WH White Reflector: 2700°K H4 Light Engine delivers 551 lumens while 4000°K H4 LED Light Engine delivers 653 lumens. Refer to the photometry for additional examples and www.cooperlighting.com for online photometric files.

H4 LED Light Engines

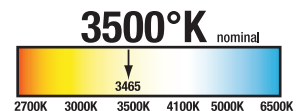
EL405827



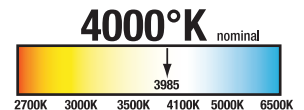
EL405830



EL405835



EL405840



*Refer to www.cooperlighting.com for product specification sheets, and the qualified selection of H4 LED Light Engines and Trims.

Halo LED H4 Housing Features

- H4 LED 4” nominal aperture housings are available for IC rated insulated ceilings (air-permeable insulation) and Non-IC rated non insulated ceilings
 - H4 LED housings are AIR-TITE™ in compliance with restricted airflow requirements per ASTM-E283 standard, and save energy restricting air flow from living spaces to unconditioned attic or plenum
 - H4 LED housings include standard Halo features:
 - Got Nail!™ Bar hangers with pre-installed nail & integral T-grid clip
 - Slide-N-Side™ wire traps and Quick-Connects for tool-less wiring outside the junction box
 - Pass-N-Thru™ Bar Hanger feature for tool-less shortening of bars without removal from frame
 - LED Driver (power supply) integral in the housing for optimized lumen delivery & superior thermal management of the LED package
 - LED Driver designed for high efficiency and long life operating the LED package for over 50,000 hours
 - Dimmable to 15% and below depending upon H4 LED housing (refer to housing specifications)
 - If dimming is not required the fixture can be operated from a standard wall switch
 - Labels
 - UL/cUL 1598 Listed Luminaire
 - UL/cUL Listed for Damp Location
 - UL/cUL Listed for Feed Through (new construction)
 - UL/cUL Listed for Wet Location with select trims
 - Rated for 15W maximum
 - H4 LED housings meet ENERGY STAR® Qualification with designated Halo H4 LED Light Engines and H4 LED trims*
 - H4 LED housings can be used to meet State of California Title 24 and International Energy Conservation Code – IECC High Efficacy requirements when used with designated Halo H4 LED Light Engines and H4 LED trims*
- *Refer to www.cooperlighting.com – HALO web page for product specification sheets, and the for qualified selection H4 LED Light Engines and Trims

Energy Data/ IC Housings

Min. Operating Temp: -30°C / -22°F
 EMI/RFI Emissions FCC 47CFR Part 18, Consumer Limits
 Sound Rating: Class A standards
 Input Voltage: 120V
 Power Factor: >0.90

Input Frequency: 50/60Hz
 THD: <20%
 Rated Wattage: 15W max.
 Input Power: 14.0W (13.6W Remodel)
 Input Current: 121mA (120mA Remodel)
 Dimmable: Electronic Low Voltage or Incandescent Dimmers

Maximum IC (Insulated Ceiling) Ambient Room Temperature: 25°C / 77°F (Continuous Operation)
 Maximum NON-IC (NON-Insulated Ceiling) Ambient Room Temperature: 40°C / 104° F (Continuous Operation)



H456ICAT120D ICAT rated, New Construction

- For direct contact with air- permeable insulation in insulated ceilings (may also be used in non-insulated ceilings)
- AIR-TITE™ meets restricted airflow requirements per ASTM E-283 test standard
- Driver: 120V, 50/60Hz, rated for FCC Consumer Limits
- <15 Watts
- Dimmable with most standard electronic low voltage or incandescent dimmers to 15% (5% on dimmers with low-end trim adjustment)
- Dimensions: 6”L x 8-1/2”W x 5-3/8”H (with 1/2” plaster lip) - Ceiling cutout: 4-1/2”



H455RICAT120D ICAT rated, Remodel

- Designed for installation from below the finished ceiling
- For direct contact with air- permeable insulation in insulated ceilings (may also be used in non-insulated ceilings)
- AIR-TITE™ meets restricted airflow requirements per ASTM E-283 test standard
- Driver: 120V, 50/60Hz, rated for FCC Consumer Limits
- <15 Watts
- Dimmable with most standard electronic low voltage or incandescent dimmers to 15% (5% on dimmers with low-end trim adjustment)
- Dimensions: 14-3/4”L x 5”W x 5-1/2”H - Ceiling cutout: 4-1/4”

HALO LED H4 COLLECTION – 4" LED HOUSINGS

Energy Data/ NON-IC Housings

Min. Operating Temp: -30°C / -22°F EMI/RFI Emissions FCC47CFR Part 18, Consumer Limits
 Sound Rating: Class A standards
 Input Voltage: Universal 120V - 277V
 Power Factor: >0.90

Input Frequency: 50/60Hz
 THD: <20%
 Rated Wattage: 15W max.
 Input Power: 13.9W
 Input Current: 121mA
 Dimmable: 0-10V Controls

Maximum NON-IC (NON-Insulated Ceiling) Ambient Room Temperature: 40°C / 104° F (Continuous Operation)



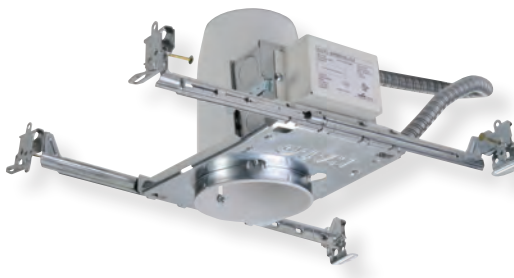
H455TUNVD010 Non-IC rated, New Construction

- For non-insulated ceilings
- Insulation must be kept 3" from all sides and top of housing
- AIR-TITE™ meets restricted airflow requirements per ASTM E-283 test standard
- Driver: 120V-277V (90V-305V) 50/60Hz Commercial / Residential (rated for FCC Consumer Limits)
- <15 Watts
- Dimmable to 10% with 0-10V DC dimming controls (2-low voltage control wires required)
- Dimensions: 5-1/2"L x 8"W x 5-1/2"H (with 1/2" plaster lip) - Ceiling cutout: 4-1/2"



H455RTUNVD010 Non-IC rated, Remodel

- Designed for installation from below the finished ceiling
- For non-insulated ceilings
- Insulation must be kept 3" from all sides and top of housing
- AIR-TITE™ meets restricted airflow requirements per ASTM E-283 test standard
- Driver: 120V-277V (90V-305V) 50/60Hz Commercial / Residential (rated for FCC Consumer Limits)
- <15 Watts
- Dimmable to 10% with 0-10V DC dimming controls (2-low voltage control wires required)
- Dimensions: 14-3/4"L x 5"W x 5-1/2"H - Ceiling cutout: 4-1/4"



H455TCPUNVD010 Non-IC rated, Chicago Plenum New Construction

- Non-IC rated, Chicago Plenum New Construction
- Insulation must be kept 3" from all sides and top of housing
- AIR-TITE™ meets restricted airflow requirements per ASTM E-283 test standard
- Driver: 120V-277V (90V-305V) 50/60Hz Commercial / Residential (rated for FCC Consumer Limits)
- <15 Watts
- Dimmable to 10% with 0-10V DC dimming controls (2-low voltage control wires required)
- Dimensions: 5-1/2"L x 8"W x 7-1/8"H (with 1/2" plaster lip) - Ceiling cutout: 4-1/2"

Halo H4 LED Adjustable Gimbal Photometry

Representative photometric test reports are as illustrated for adjustable gimbals in 3500°K color temperature. For relative lumen values with other color temperature options in Halo LED, use the appropriate multiplier.

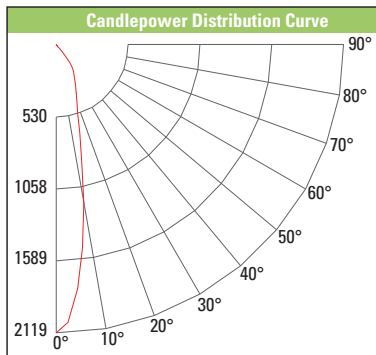
Color Temperature as tested: 3500°K

Color Temperature	2700°K	3000°K	3500°K	4000°K
Multiplier	0.8905	0.9476	1.0000	1.0476

4" Adjustable Gimbal - 3500K ELG405835xx (25° Beam-0° tilt)

Spacing Criteria = 0.38
Lumens per Watt = 49.1 LpW
Test No. P85058
Test Model: ELG405835TBZ (25° reflector)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	4124
55	1168
65	337
75	216
85	290



Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	504	N/A	75
0-40	626	N/A	93.2
0-60	668	N/A	99.4
0-90	672	N/A	100

Candela Distribution	
Degrees Vertical	Candela
0	2119
5	1802
15	669
25	337
35	203
45	33
55	8.4
65	2.1
75	1.1
85	1.1
90	0

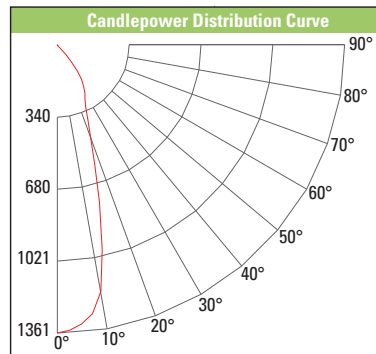
Cone of Light Vertical Footcandles on Wall			
Distance to Illuminated Plane	35° Aiming Angle		
	Initial Foot Candles	Beam (ft) L	Beam (ft) W
2' 0"	119	2.1	1.2
3' 0"	53	3.1	1.8
4' 0"	30	4.2	2.4
5' 0"	19	5.2	3.0
6' 0"	13	6.3	3.6
8' 0"	7	8.4	4.9
10' 0"	5	10.5	6.1
12' 0"	3	12.6	7.3

Cone of Light Horizontal Footcandles		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	70	2.1
7' 0"	43	2.6
8' 0"	33	3.0
9' 0"	26	3.4
10' 0"	21	3.8

4" Adjustable Gimbal - 3500K ELG405835xx (35° Beam-0° tilt)

Spacing Criteria = 0.56
Lumens per Watt = 46.9 LpW
Test No. P85061
Test Model: ELG405835TBZ (35° reflector)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	3052
55	445
65	176
75	0
85	0



Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	489	N/A	76.4
0-40	609	N/A	95
0-60	639	N/A	99.8
0-90	641	N/A	100

Candela Distribution	
Degrees Vertical	Candela
0	1361
5	1323
15	768
25	322
35	199
45	24
55	3.2
65	1.1
75	0
85	0
90	0

Cone of Light Vertical Footcandles on Wall			
Distance to Illuminated Plane	35° Aiming Angle		
	Initial Foot Candles	Beam (ft) L	Beam (ft) W
2' 0"	103	2.1	1.5
3' 0"	46	3.1	2.2
4' 0"	26	4.1	2.9
5' 0"	16	5.2	3.7
6' 0"	11	6.2	4.4
8' 0"	6	8.3	5.9
10' 0"	4	10.4	7.4
12' 0"	3	12.4	8.8

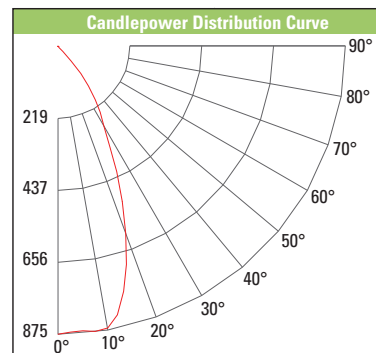
Cone of Light Horizontal Footcandles		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	45	3.0
7' 0"	28	3.9
8' 0"	21	4.4
9' 0"	17	5.0
10' 0"	14	5.5

Refer to Optional Accessory
Reflector Kit TL412RK for 35° reflector.

4" Adjustable Gimbal - 3500K ELG405835xx (50° Beam-0° tilt)

Spacing Criteria = 0.80
Lumens per Watt = 47.0 LpW
Test No. P85064
Test Model: ELG405835TBZ (50° reflector)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	2787
55	292
65	176
75	216
85	0



Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	490	N/A	76.2
0-40	611	N/A	95.1
0-60	641	N/A	99.7
0-90	643	N/A	100

Candela Distribution	
Degrees Vertical	Candela
0	874
5	867
15	772
25	422
35	200
45	22
55	2.1
65	1.1
75	1.1
85	0
90	0

Cone of Light Vertical Footcandles on Wall			
Distance to Illuminated Plane	35° Aiming Angle		
	Initial Foot Candles	Beam (ft) L	Beam (ft) W
2' 0"	87	2.0	1.9
3' 0"	39	3.0	2.8
4' 0"	22	4.0	3.7
5' 0"	14	5.0	4.7
6' 0"	10	6.0	5.6
8' 0"	5	8.0	7.5
10' 0"	3	10.0	9.4
12' 0"	2	12.1	11.2

Cone of Light Horizontal Footcandles		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	29	4.4
7' 0"	18	5.6
8' 0"	14	6.3
9' 0"	11	7.1
10' 0"	9	7.9

Refer to Optional Accessory
Reflector Kit TL412RK for 50° reflector.

Halo H4 LED Downlight Photometry

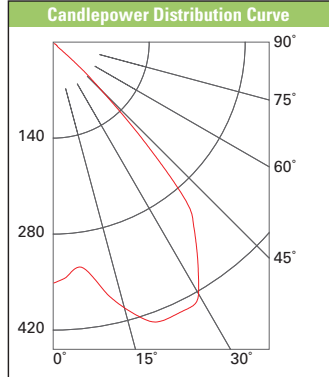
Representative photometric test reports are as illustrated for downlighting include open and lensed trims in combination with Halo H4 LED Light Engines in 3500°K color temperature. For relative lumen values with other color temperature options in Halo LED use the appropriate multiplier.

Color Temperature as tested: 3500°K				
Color Temperature	2700°K	3000°K	3500°K	4000°K
Multiplier	0.8905	0.9476	1.0000	1.0476

Specular Clear, Open TL400SC

Spacing Criteria = 1.3
Lumens per Watt = 48.54 LpW
Test No. P20074
Test Model: EL405835 (3500K LED module)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	19879
55	1290
65	1167
75	953
85	1415



Candela Distribution	
Degrees Vertical	Candela
0	349
5	331
15	399
25	433
35	363
45	114
55	6
65	4
75	2
85	1
90	0

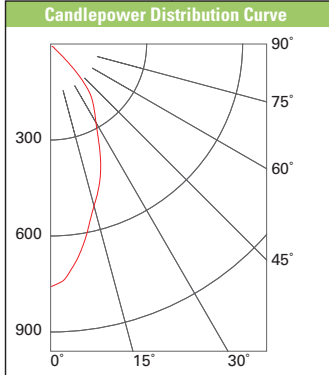
Cone of Light		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	12	10.3
7' 0"	7	13.1
8' 0"	6	15.0
9' 0"	4	16.9
10' 0"	4	18.8

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	346	N/A	50.5
0-40	573	N/A	83.6
0-60	679	N/A	99.0
0-90	686	N/A	100

Specular Clear, Solite Lens TL402SCS

Spacing Criteria = 0.7
Lumens per Watt = 43.53 LpW
Test No. P20078
Test Model: EL405835 (3500K LED module)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	15694
55	2795
65	2042
75	953
85	1415



Candela Distribution	
Degrees Vertical	Candela
0	751
5	702
15	516
25	358
35	231
45	90
55	13
65	7
75	2
85	1
90	0

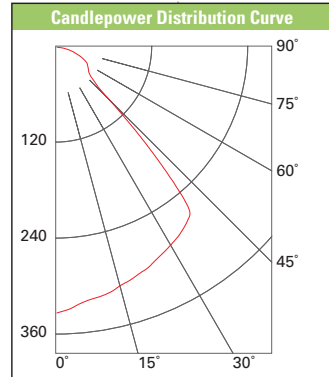
Cone of Light		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	25	7.1
7' 0"	15	9.0
8' 0"	12	10.3
9' 0"	9	11.6
10' 0"	8	12.9

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	375	N/A	61.1
0-40	519	N/A	84.7
0-60	603	N/A	98.3
0-90	613	N/A	100

White Baffle, Open TL401WB

Spacing Criteria = 1.3
Lumens per Watt = 44.17 LpW
Test No. P20077
Test Model: EL405835 (3500K LED module)

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	15868
55	10318
65	11087
75	9528
85	7074



Candela Distribution	
Degrees Vertical	Candela
0	332
5	322
15	308
25	293
35	276
45	91
55	48
65	38
75	20
85	5
90	0

Cone of Light		
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	11	10.1
7' 0"	7	12.9
8' 0"	5	14.8
9' 0"	4	16.6
10' 0"	3	18.4

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	254	N/A	40.7
0-40	427	N/A	68.5
0-60	558	N/A	89.7
0-90	623	N/A	100

HALO H4 LED PHOTOMETRY

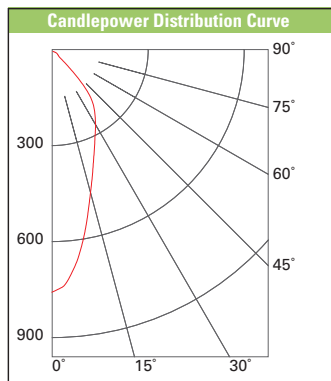
Halo H4 LED Downlight Photometry

Representative photometric test reports are as illustrated for downlighting include open and lensed trims in combination with Halo H4 LED Light Engines in 3500°K color temperature. For relative lumen values with other color temperature options in Halo LED use the appropriate multiplier.

Color Temperature as tested: 3500°K				
Color Temperature	2700°K	3000°K	3500°K	4000°K
Multiplier	0.8905	0.9476	1.0000	1.0476

**White Baffle, Solite Lens
TL403WBS**

Spacing Criteria = 0.6
Lumens per Watt = 44.27 LpW
Test No. P20081
Test Model: EL405835 (3500K LED module)



Degrees Vertical	Candela
0	753
5	698
15	464
25	317
35	234
45	105
55	26
65	19
75	9
85	2
90	0

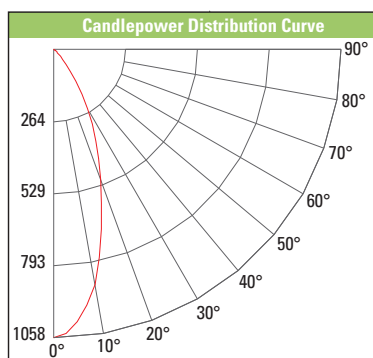
Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	25	7.1
7' 0"	15	9.0
8' 0"	12	10.3
9' 0"	9	11.6
10' 0"	8	12.9

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	18309
55	5589
65	5543
75	4288
85	2829

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	341	N/A	54.6
0-40	487	N/A	78.0
0-60	594	N/A	95.1
0-90	624	N/A	100

**Square Baffle Trim with Solite®
Regressed Lens - TLS408WHWB**

Spacing Criteria = 0.62
Lumens per Watt = 43.6 LpW
Test No. P85080
Test Model: EL405835 (3500K LED light engine)



Degrees Vertical	Candela
0	1058
5	1002
15	683
25	371
35	143
45	36
55	13
65	7
75	4
85	1
90	0

Distance to Illuminated Plane	Initial Nadir Foot Candles	Beam Diameter (ft)
5' 6"	33	5.8
7' 0"	21	7.4
8' 0"	16	8.4
9' 0"	12	9.5
10' 0"	10	10.6

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	4502
55	1752
65	1186
75	824
85	290

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	450	N/A	75.4
0-40	542	N/A	90.8
0-60	584	N/A	97.8
0-90	597	N/A	100

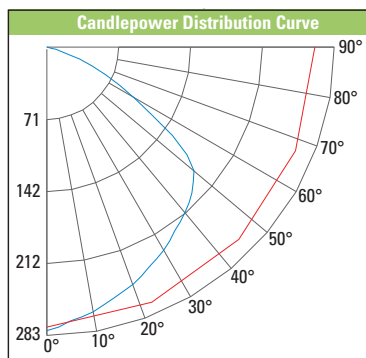
Halo H4 LED Wall Wash Downlight Photometry

Representative photometric test report is illustrated for a wall wash trim in combination with a Halo H4 LED Light Engines in 3000°K color temperature. For relative lumen values with other color temperature options in Halo LED use the appropriate multiplier.

Color Temperature as tested: 3000°K				
Color Temperature	2700°K	3000°K	3500°K	4000°K
Multiplier	0.9397	1.0000	1.0553	1.1055

**Wall Wash, Semi-Specular Clear
Reflector, Specular Wall Wash Optic
TL409WW**

Spacing Criteria = 1.24
Lumens per Watt = 42.02 LpW
Test No. P21178
Test Model: EL405830 (3000K LED light engine)



Degrees Vertical	Candela
0	278
5	270
15	255
25	238
35	220
45	202
55	151
65	64
75	14
85	2
90	0

Distance From Ceiling in Feet	2' from Wall - 2' On Center		
	1'	2'	3'
1'	15.6	15.8	15.6
2'	24.6	27.8	24.6
3'	15.0	16.2	15.0
4'	8.9	9.6	8.9
5'	5.6	5.9	5.6
6'	3.6	3.8	3.6
7'	2.5	2.5	2.5
8'	1.7	1.8	1.7
9'	1.3	1.3	1.3
10'	1.0	1.0	1.0

Distance From Ceiling in Feet	2' from Wall - 3' On Center		
	1'	2'	3'
1'	13.8	9.0	13.8
2'	20.2	20.7	20.2
3'	12.6	13.6	12.6
4'	7.7	8.5	7.7
5'	5.0	5.4	5.0
6'	3.3	3.6	3.3
7'	2.3	2.4	2.3
8'	1.6	1.7	1.6
9'	1.2	1.3	1.2
10'	0.9	0.9	0.9

Luminance (Average Candela/M ²)	
Degrees	Avg. 0° Luminance
45	35203
55	32442
65	18662
75	6666
85	2828

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	217	N/A	61.1
0-40	347	N/A	84.7
0-60	534	N/A	98.3
0-90	576	N/A	100

HALO H4 LED PHOTOMETRY SUMMARY

H4 Downlight Photometry Quick Reference

H4 LED Downlight Collection		EL405827 2700°K	EL405830 3000°K	EL405835 3500°K	EL405840 4000°K
Trim Type	Trim Model	Lumens ¹			
Open Specular Reflector	TL400SC	603	655	686	700
Open Haze Reflector	TL400H	566	619	653	667
Open White Reflector	TL400WH	551	606	636	653
Open White Baffle	TL401WB	539	593	623	639
Solite® Lens Specular Clear Reflector	TL402SCS	535	584	613	624
Solite® Lens Haze Reflector	TL402HS	534	575	613	615
Solite® Lens White Reflector	TL402WHS	539	590	630	629
Solite® Lens White Baffle	TL403WBS	536	584	624	625
Open Specular Black Reflector	TL400SBK	373	390	392	408
Open Satin Nickel Reflector	TL400SN	455	475	480	496
Open Tuscan Bronze Reflector	TL400TBZ	414	434	434	451
Open Black Baffle	TL401BB	368	383	388	403
Solite® Lens Specular Black Reflector	TL402SBKS	497	515	521	531
Solite® Lens Satin Nickel Reflector	TL402SNS	508	527	533	544
Solite® Lens Tuscan Bronze Reflector	TL402TBZS	484	505	504	519
Solite® Lens Black Baffle	TL403BBS	495	515	520	531
Square Baffle Trim, Solite® Lens, White Ring and White Baffle	TLS408WHWB	531	565	596	625
Square Baffle Trim, Solite® Lens, White Ring and Black Baffle	TLS408WHBB	502	535	554	591
Square Baffle Trim, Solite® Lens, Satin Nickel Ring and Black Baffle	TLS408SNBB	502	535	554	591
Square Baffle Trim, Solite® Lens, Tuscan Bronze Ring and Black Baffle	TLS408TBZBB	502	535	554	591
Wall Wash, Semi-Specular Reflector, and White Ring	TL409WW	538	575	604	633
Wall Wash, White Reflector, and White Ring	TL409WHWW	530	564	596	624
Polymer Lensed Shower Trim, White Baffle and Ring	TL422PS	568	605	638	669

H4 Adjustable Gimbal Photometry Quick Reference

H4 LED Adjustable Gimbal Collection		H4 LED Gimbal ² 2700°K	H4 LED Gimbal ² 3000°K	H4 LED Gimbal ² 3500°K	H4 LED Gimbal ² 4000°K
		ELG405827 ELSG405827 (WH / SN / TBZ) ³	ELG405830 ELSG405830 (WH / SN / TBZ) ³	ELG405835 ELSG405835 (WH / SN / TBZ) ³	ELG405840 ELSG405840 (WH / SN / TBZ) ³
Trim Type	Photometric Test Trim Model ²	Lumens ¹			
4" Round and Square Adjustable Gimbal Trim - Light Engine	ELG405830TBZ	598	636	671	703

1. Baseline testing is performed in accordance with IES LM-79 Photometric Measurement Standards to represent relative SSL fixture performance. Values on select models may be scaled using IESNA LM-79 data, from a designated test model, for other color temperatures. Refer to www.cooperlighting.com for specific photometric test data. Field results may vary.

2. The designated adjustable gimbal model was tested with standard 25 degree beam reflector (measured at Nadir).

3. Gimbal Finish Codes: WH = White SN = Satin Nickel TBZ = Tuscan Bronze

HALO H4 LED COMPLIANCE MATRIX



QUALIFIED AND COMPLIANT WITH DESIGNATED LED LIGHT ENGINES AND TRIMS*

*Refer to www.cooperlighting.com for product specification sheets, and the qualified selection of H4 LED Light Engines and Trims.

H4 LED	TL400SC	TL400H	TL400WH	TL401WB	TL402SCS	TL402HS	TL402WHS	TL403WBS	TL400SBK	TL400SN	TL400TBZ	TL401BB	TL402SBKS	TL402SNS	TL402TBZS	TL403BBS	TLS408WHWB	TLS408WHBB	TLS408SNBB	TLS408TBZBB	TL409WW	TL409WWWW	TL422PS
EL405827	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	T24	T24	T24	T24	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EL405830	ES	ES	ES	ES	ES	ES	ES	ES	*	*	*	*	ES	ES	ES	ES	*	*	*	*	*	*	*
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*	T24	*	*	*	T24	T24	T24
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*	IECC	*	*	*	IECC	IECC	IECC
EL405835	ES	ES	ES	ES	ES	ES	ES	ES	*	*	*	*	ES	ES	ES	ES	*	*	*	*	*	*	*
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*	T24	*	*	*	T24	T24	T24
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*	IECC	*	*	*	IECC	IECC	IECC
EL405840	ES	ES	ES	ES	ES	ES	ES	ES	*	ES	*	*	ES	ES	ES	ES	*	*	*	*	*	*	*
	T24	T24	T24	T24	T24	T24	T24	T24	*	*	*	*	*	*	*	*	T24	*	*	*	T24	T24	T24
	IECC	IECC	IECC	IECC	IECC	IECC	IECC	IECC	*	*	*	*	*	*	*	*	IECC	*	*	*	IECC	IECC	IECC

H4 LED Round Adjustable Gimbals	ENERGY STAR®	TITLE 24	IECC
ELG405827 (WH / SN / TBZ)	ES	*	*
ELG405830 (WH / SN / TBZ)	ES	T24	IECC
ELG405835 (WH / SN / TBZ)	ES	T24	IECC
ELG405840 (WH / SN / TBZ)	ES	T24	IECC

H4 LED Square Adjustable Gimbals	ENERGY STAR®	TITLE 24	IECC
ELSG405827 (WH / SN / TBZ)	ES	*	*
ELSG405830 (WH / SN / TBZ)	ES	T24	IECC
ELSG405835 (WH / SN / TBZ)	ES	T24	IECC
ELSG405840 (WH / SN / TBZ)	ES	T24	IECC

SYMBOL QUALIFICATION STANDARD
 ES ENERGY STAR® Luminaire
 T24 California Energy Commission Building Energy Efficiency Standards, California Code of Regulations Title 24, Part 1 -- High Efficacy Luminaire
 IECC International Energy Conservation Code® -- "High Efficacy Lamps" and Section 404 "Electrical Power and Lighting Systems"

NOTE: Consult the specific standard for complete details.



Greenhaven, Marietta, GA - Builder: Pace Homebuilders, Photography: Eric Prine, Attic Fire Photography

ORDERING INFORMATION

H4 Downlights- SAMPLE NUMBER: H456ICAT120D - EL405830 - TL400SC

Order Housing, LED Light Engine and Trim separately

H4 LED Housing	H4 LED Light Engine			Trim Options	Accessories <i>(see product details for application information)</i>
	EL405	8			
<p>H456ICAT120D= 4" Dedicated LED Insulated Ceiling AIR-TITE™ Housing, 120V Driver with standard Dimming</p> <p>H455RICAT120D = 4" Dedicated LED Insulated Ceiling AIR-TITE™ Remodel Housing, 120V Driver with standard Dimming</p> <p>H455TUNVD010 = 4" Dedicated LED Non-IC AIR-TITE™ Housing, 120V-277V Driver with 0-10V Dimming</p> <p>H455TCPUNVD010 = 4" Chicago Plenum Dedicated LED Non-IC AIR-TITE™ Housing, 120V-277V Driver with 0-10V Dimming</p> <p>H455RTUNVD010 = 4" Dedicated LED Non-IC AIR-TITE™ Remodel Housing, 120V-277V Driver with 0-10V Dimming</p>	<p>EL405 = 4" LED Downlight Light Engine, 550 Design Lumens</p>	<p>8 = 80 CRI</p>	<p>27 = 2725°K 30 = 3045°K 35 = 3465°K 40 = 3985°K</p>	<p>TL400SC = Specular Clear Reflector, White Ring</p> <p>TL400H = Haze Reflector, White Ring</p> <p>TL400WH = White Reflector, White Ring</p> <p>TL400SN = Satin Nickel Reflector, Satin Nickel Ring</p> <p>TL400TBZ = Tuscan Bronze Reflector, Tuscan Bronze Ring</p> <p>TL400SBK = Black Specular Reflector, White Ring</p> <p>TL401WB = White Baffle, White Ring</p> <p>TL401BB = Black Baffle, White Ring</p> <p>TL402SCS = Solite® Lens, Specular Clear Reflector and White Ring, Shower Rated</p> <p>TL402HS = Solite® Lens, Haze Reflector and White Ring, Shower Rated</p> <p>TL402WHS = Solite® Lens, White Reflector and White Ring, Shower Rated</p> <p>TL402SNS = Solite® Lens, Satin Nickel Reflector and Satin Nickel Ring, Shower Rated</p> <p>TL402TBZS = Solite® Lens, Tuscan Bronze Reflector and Tuscan Bronze Ring, Shower Rated</p> <p>TL402SBKS = Solite® Lens, Black Specular Reflector and White Ring, Shower Rated</p> <p>TL403WBS = Solite® Lens, White Baffle and White Ring, Shower Rated</p> <p>TL403BBS = Solite® Lens, Black Baffle and White Ring, Shower Rated</p> <p>TLS408WHWB=Square Baffle Trim, Solite® Lens, White Ring with White Baffle</p> <p>TLS408WHBB=Square Baffle Trim, Solite® Lens, White Ring with Black Baffle</p> <p>TLS408SNBB=Square Baffle Trim, Solite® Lens, Satin Nickel Ring with Black Baffle</p> <p>TLS408TBZBB=Square Baffle Trim, Solite® Lens, Tuscan Bronze Ring with Black Baffle</p> <p>TL409WW=Wall Wash, Semi-Specular Clear Reflector with White Ring</p> <p>TL409WHWW=Wall Wash, White Reflector with White Ring</p> <p>TL422PS=Polymer Baffle & Regressed Lens Shower Trim, White Baffle & Ring</p>	<p>Thin Profile Designer Trim Rings <i>For use with Round TL4 trims (not compatible with Square TLS4 trims)</i></p> <p>TRM400WH = White</p> <p>TRM400BK = Black</p> <p>TRM400SN = Satin Nickel</p> <p>TRM400TBZ = Tuscan Bronze</p> <p>TRM400PC = Polished Chrome</p>

H4 Adjustable Gimbals- SAMPLE NUMBER: H456ICAT120D - ELG405830WH

Order Housing and LED Adjustable Gimbal separately

H4 LED Housing	H4 LED Adjustable Gimbal / LED Light Engine				Accessories <i>(see product details for application information)</i>
		05	8		
<p>H456ICAT120D= 4" Dedicated LED Insulated Ceiling AIR-TITE™ Housing, 120V Driver with standard Dimming</p> <p>H455RICAT120D = 4" Dedicated LED Insulated Ceiling AIR-TITE™ Remodel Housing, 120V Driver with standard Dimming</p> <p>H455TUNVD010 = 4" Dedicated LED Non-IC AIR-TITE™ Housing, 120V-277V Driver with 0-10V Dimming</p> <p>H455TCPUNVD010 = 4" Chicago Plenum Dedicated LED Non-IC AIR-TITE™ Housing, 120V-277V Driver with 0-10V Dimming</p> <p>H455RTUNVD010 = 4" Dedicated LED Non-IC AIR-TITE™ Remodel Housing, 120V-277V Driver with 0-10V Dimming</p>	<p>ELG4= 4" Round LED Adjustable Gimbal Light Engine</p> <p>ELSG4= 4" Square LED Adjustable Gimbal Light Engine</p>	<p>05 = 550 Design Lumens</p>	<p>8 = 80 CRI</p>	<p>27 = 2725°K 30 = 3045°K 35 = 3465°K 40 = 3985°K</p> <p>Finish WH = White SN = Satin Nickel TBZ = Tuscan Bronze</p>	<p>Optional Accessories <i>For use with round and square adjustable gimbals only.</i></p> <p>Reflector Kit (ordered separately) TL412RK = 25°, 35° and 50° reflectors kit.</p> <p>Lens Media (ordered separately) <i>One lens media may be used in place of clear lens.</i></p> <p>Optical Lenses L110 = Diffuse Sand Blasted Lens L111 = Soft Focus Textured Lens L113 = Prismatic Lens L115 = Linear Spread Lens</p> <p>Dichroic Color Films L114 = UV Filter L120 = Red L121 = Amber L122 = Yellow L123 = Green L124 = Daylight L125 = Blue L127 = Cosmetic Color Filters L130 = Yellow</p>

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