

## Ketra D2R Adjustable Remodeler Downlight

### PRODUCT DESCRIPTION

Ketra full spectrum D2R, non-IC rated, recessed LED downlights are available in fixed, adjustable, and wall-wash options to complete any lighting design project.

### FEATURES

**High Def Palette**—covers a wide range of 16.7 million colors, including pastels, saturated colors and high CRI whites spanning from 1400 K to 10,000 K.

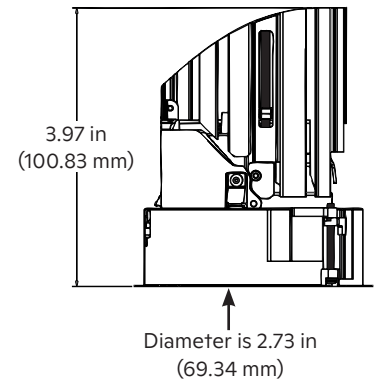
**Dynamic Spectrum**—precisely tunes the amount of energy across the visible spectrum to produce Natural Light, Natural Dimming, and Vibrancy.

**TruBeam**—produces uniform color across any available beam angle.








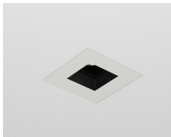




**Color Lock**—maintains your desired color point at a one-step MacAdam Ellipse across all Ketra product families and over each product's lifetime.



Adjustable LED Module with Ceiling Mount



### OPTIONS

	Round Bevel	Square Bevel	Round Pinhole	Square Pinhole
Flanged				
Flangeless Mud-In				
Flangeless Millwork				

### Trim Finish

				
White	Black	Silver	Bronze	Gloss Black <sup>1</sup>
				
Silver / White <sup>2</sup>	Black / White <sup>2</sup>	Gloss Black / White <sup>2</sup>		

<sup>1</sup> Flangeless trims only.

<sup>2</sup> White flange standard with flanged trims.

## SPECIFICATIONS<sup>1</sup>

### Optical Performance

Delivered Lumens <sup>2</sup>	
Beam Angle	<b>16.3 W</b>
15° beam, high output	<b>1162 lm</b>
25° beam, high output	<b>1185 lm</b>
40° beam, high output	<b>1240 lm</b>
60° beam, high output	<b>1187 lm</b>
15° beam, low glare	<b>1049 lm</b>
25° beam, low glare	<b>1061 lm</b>
40° beam, low glare	<b>1020 lm</b>
60° beam, low glare	<b>986 lm</b>
CRI (Ra)	<b>&gt;90 from 2700 K to 5000 K</b>
R9	<b>&gt;90</b>
Lumen Maintenance <sup>3</sup>	<b>50,000 hours to L70 @ 25 °C T<sub>A</sub></b>
Color Point Range	<b>1400 K – 10,000 K, Fully Saturated &amp; Pastel</b>
Dimming Protocol	<b>Wireless RF/CCX (Lutron Clear Connect-Type X)</b>
Dimming Range	<b>0.1-100%</b>
Delivered Efficacy	
Beam Angle	<b>16.3 W</b>
15° beam, high output	<b>71 lm/W</b>
25° beam, high output	<b>73 lm/W</b>
40° beam, high output	<b>76 lm/W</b>
60° beam, high output	<b>73 lm/W</b>
15° beam, low glare	<b>64 lm/W</b>
25° beam, low glare	<b>65 lm/W</b>
40° beam, low glare	<b>63 lm/W</b>
60° beam, low glare	<b>60 lm/W</b>

### Environmental

Ambient Temperature	<b>32 – 104 °F (0 – 40 °C)</b>
Extended Ambient Temperature <sup>4</sup>	<b>-32 – 32 °F (-35 – 0 °C)</b>
Humidity	<b>0 – 95%, Non-condensing</b>
Certification	<b>UL, cUL, 120 V~: FCC Class B, T24 (JA8)<sup>5</sup>; Non-IC Rated<sup>7</sup></b>
Location	<b>UL Damp Location, UL Wet Location (shower) available with Trim Lens. Installation not compatible with metal ceilings. UL2043 and CAN/ULC-S142 rated for use in air handling spaces (plenums).</b>
Outdoor/Indoor	<b>Outdoor use available for fixed and adjustable option only in residential enclosed/covered patio applications. Trim lens required. Wall Wash option not available for outdoor applications.</b>

### Mechanical

Mounting Options	<b>Flanged and mud-in ceiling mount: Installed after the ceiling installation is complete. Millwork ceiling mount: Requires access prior to ceiling installation to attach the mount.</b>
Field Replaceable Optics	<b>Yes</b>
Field Replaceable LED Module	<b>Yes</b>
Field Replaceable Power Supply	<b>Yes</b>
Field LED Module Type Convertibility	<b>Adjustable and Fixed LED Modules are interchangeable.</b>
Fixture Weight <sup>6</sup>	<b>1.2 lb (0.54 kg)</b>
LED Module Material	<b>Painted and Anodized Aluminium</b>
Lens Material	<b>PMMA</b>

### Warranty

Limited Warranty	<b>5 years fixture, LED and dimming warranty</b>
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<sup>1</sup> All measurements are considered typical performance and were taken with 1 in (25.4 mm) white trim, with light engine at nadir, at 3000 K, 25 °C ambient, 100% power input, no accessory, unless otherwise stated.  
<sup>2</sup> Lumen measurement complies with IES LM-79-08 testing procedures.  
<sup>3</sup> Lumen maintenance values calculated in accordance to TM-21 procedures based on LM-80 compliant measurement data.  
<sup>4</sup> Color accuracy not guaranteed in Extended Ambient Temperature range.  
<sup>5</sup> All products in the D2R family are Title 24 JA8 compliant when installed with a Trim Accessory lens on the trim. For more information, please contact Lighting Technical Support at [lightingsupport@lutron.com](mailto:lightingsupport@lutron.com) or 1.844.LUTRON1 (1.844.588.7661).  
<sup>6</sup> Includes the weight of the power supply, LED Module, mount and trim.  
<sup>7</sup> Maintain 6 in (152.4 mm) from all the insulation in the ceiling. Refer to the LED Module drawings in the 'Product Dimensions' section for a visual and information.

## SPECIFICATIONS <sup>1</sup> (cont.)

### Dimensions

Ceiling Hole Diameter/Width	3.13 in (79.37 mm) Flanged 4.00 in (101.6 mm) Flangeless Mud-In 2.83 in (71.88 mm) Flangeless Millwork
Ceiling Thickness (min-max)	0.5 – 2 in (12.7 – 50.8 mm)
Ceiling Install Cavity <sup>2, 3</sup>	Maintain 0.75 in (19.05 mm) of space above the product. Provide clearance diameter of 8 in (200 mm) for full 361° of rotation at 40° tilt.
Light Module Diameter	2.72 in (69.08 mm)
Trim Thickness	0.05 in (1.27 mm)
Adjustability	Emitter tilt to 40° Emitter full 361° rotation For ceiling thickness greater than 1.25 in (31.75 mm), your ability to adjust the tilt angle will be reduced.
Mount Length/Diameter	Flanged 3.40 in (86.36 mm) Mud-In 6.00 in (152.4 mm) Millwork 3.43 in (87.12 mm)
Mount Height	1.11 in (28.19 mm)

### Electrical

Power Consumption	16.3 W
Input Current	150 mA
Power Factor	>0.9
Inrush Current	800 mA, 0.2 ms duration
Surge Protection	2.5 KV
Voltage	120 V~ 60 Hz
Emergency Lighting	Evaluated by UL® for use in emergency lighting systems in accordance with standard UL® 924 and CSA C22.2 No. 141 when paired with the LVS™ model LUT-SHUNT-A-TD (UL® file E206507) <sup>4</sup> .
Wiring	CCX devices require continuous power for optimal mesh performance, and must be wired such that their power cannot be inadvertently or frequently interrupted. Bypass any dimmer or switch in between the breaker and the CCX device.

### Communication

Processor or Gateway to Device	All CCX devices must be within 75 ft (22.9 m) of their assigned processor or gateway.  It is recommended that the wireless processor or gateway and the CCX devices assigned to it are located on the same floor.
Device to Device	Each CCX device must have at least two other non-battery powered CCX devices within 25 ft (7.5 m).  Groups or clusters of CCX devices assigned to the same processor or gateway must not be separated by more than 25 ft (7.5 m).
Interference Sources	CCX devices must be placed a minimum of 3 ft (1.0 m) from 2.4 GHz interference sources such as wireless access points, microwave ovens, Vive hubs.

<sup>1</sup> All measurements are considered typical performance and were taken with 1 in (25.4 mm) white trim, with light engine at nadir, at 3000 K, 25 °C ambient, 100% power input, no accessory, unless otherwise stated.

<sup>2</sup> Refer to the LED Module drawings in the 'Product Dimensions' section for more information and diagrams.

<sup>3</sup> Maintain 6 in (152.4 mm) from all the insulation in the ceiling. Refer to the LED Module drawings in the 'Product Dimensions' section for a visual and information.

<sup>4</sup> See Lutron Application Note 106 (P/N 048106) at [www.lutron.com](http://www.lutron.com) for wiring details of emergency lighting in commercial systems.

COMPONENT ORDERING GUIDE

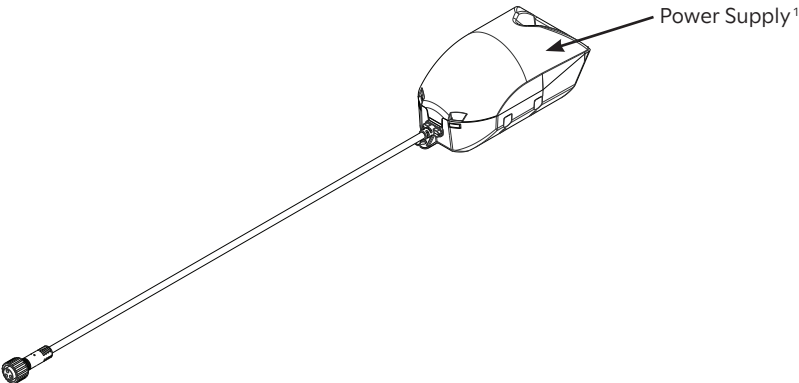
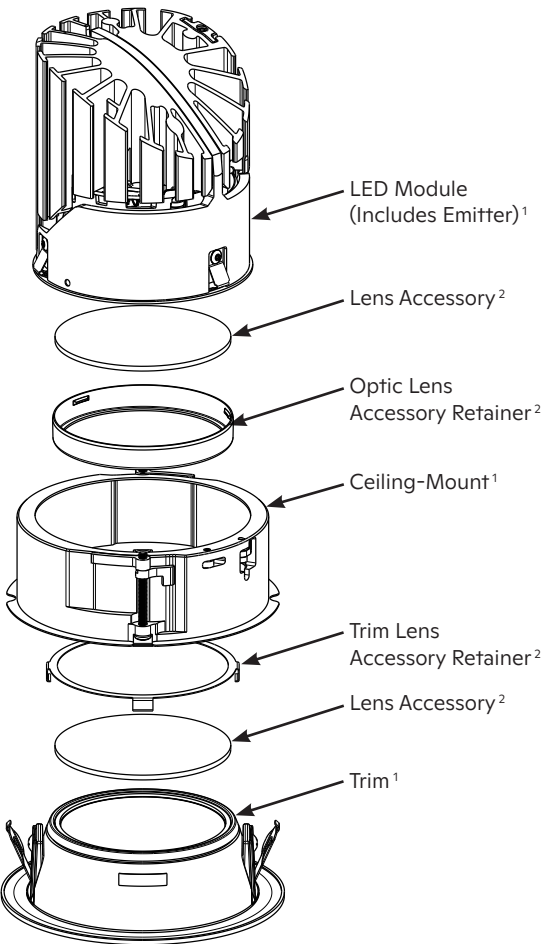
Please download this PDF to use the interactive drop down features of the ordering guide.

LED Module

	D2R	FS	A	18
Product Line	Series	LED Type	Fixture Type	Power Supply Max. Rating
		11		
Beam Angle	Optic Style	Voltage		

Order code: \_\_\_\_\_

Product Line	Code
Residential (HomeWorks compatible)	HW-
Commercial (coming soon)	CM-
Series	
D2R Fixture	D2R
LED Type	
Ketra	FS
Fixture Type	
Adjustable	A
Power Supply Max. Rating	
18 W	18
Beam Angle	
Spot (15°)	15
Narrow Flood (25°)	25
Flood (40°)	40
Wide Flood (60°)	60
Optic Style	
Low Glare	L
High Output	H
Voltage	
120 V~ 60 Hz	11



1 Required for installation.  
2 Optional.



**COMPONENT ORDERING GUIDE (cont.)**
**Replacement Optics**

UN-D2	OP	
Product Line	Accessory Type	Beam Angle

Order code: \_\_\_\_\_

**Optics Accessories**

UN-D2	OA	
Product Line	Accessory Type	Accessory

Order code: \_\_\_\_\_

**Trim Lens Accessories**

UN-D2	TL		
Product Line	Accessory Type	Shape	Accessory

Order code: \_\_\_\_\_

Product Line	Code
Universal Part - Recessed Downlight	<b>UN-D2</b>
Accessory Type	
Optic	<b>OP</b>
Beam Angle	
Spot (15°) Low Glare <sup>4</sup>	<b>LG15</b>
Flood (25°) Low Glare	<b>LG25</b>
Wide Flood (40°) Low Glare	<b>LG40</b>
Very Wide Flood (60°) Low Glare	<b>LG60</b>
Spot (15°) High Output <sup>4</sup>	<b>HO15</b>
Flood (25°) High Output	<b>HO25</b>
Wide Flood (40°) High Output	<b>HO40</b>
Very Wide Flood (60°) High Output	<b>HO60</b>

Product Line	Code
Universal Part - Recessed Downlight	<b>UN-D2</b>
Accessory Type	
Optic	<b>OA</b>
Accessory <sup>1,2,3</sup>	
Soft Focus Lens <sup>2,3</sup>	<b>S1</b>
Frosted Lens <sup>2,3</sup>	<b>F1</b>
Linear Lens (10x20) <sup>2,3</sup>	<b>L1</b>
Clear Lens <sup>2,3</sup>	<b>C1</b>
Hex Louver <sup>2,3</sup>	<b>H1</b>
None	<b>XX</b>

Product Line	Code
Universal Part - Recessed Downlight	<b>UN-D2</b>
Accessory Type	
Trim	<b>TL</b>
Shape	
Square	<b>SQ</b>
Round	<b>RD</b>
Accessory <sup>1,2,3</sup>	
Soft Focus Lens <sup>2,3</sup>	<b>S1</b>
Frosted Lens <sup>2,3</sup>	<b>F1</b>
Linear Lens (10x20) <sup>2,3</sup>	<b>L1</b>
Clear Lens <sup>2,3</sup>	<b>C1</b>
None	<b>XX</b>

**TRIM/LENS OPTION EFFICIENCY TABLE**

	LG15	LG25	LG40	LG60	HO15	HO25	HO40	HO60
<b>Clear</b>	100%	100%	100%	100%	100%	100%	100%	100%
<b>Soft Focus</b>	93%	93%	93%	93%	95%	96%	96%	96%
<b>Frosted</b>	93%	93%	92%	93%	95%	96%	96%	95%
<b>Linear (10x20)</b>	92%	92%	92%	91%	94%	94%	94%	94%
<b>Hex Louver</b>	67%	62%	56%	50%	61%	58%	51%	45%

<sup>1</sup> Downlight is wet location rated when trim is installed with lens.

<sup>2</sup> Maximum of 2 accessories available at once across the optic and trim accessories.

<sup>3</sup> Downlights with outdoor housings require a trim installed with lens.

<sup>4</sup> 15° optics must be used with 15° emitters. 15° emitters can be confirmed in the housing ordering code. 25°, 40° and 60° optics share the same base emitter.

## COMPONENT ORDERING GUIDE (cont.)

### Power Supply

D2R	PS	120
Product Line	Product	Voltage

Order code: \_\_\_\_\_

Product Line	Code
Recessed Downlight	<b>D2R</b>

Product	
Power Supply	<b>PS</b>

Voltage	
120 V~ 60 Hz	<b>120</b>

### Ceiling Mounts

UN-D2R			
Product Line	Shape	Ceiling Interface	Ceiling Thickness

Order code: \_\_\_\_\_

Product Line	Code
Universal Part	<b>UN-D2R</b>

Shape	
Square	<b>SQ</b>
Round	<b>RD</b>

Ceiling Interface	
Flanged	<b>F</b>
Flangeless Mud-In	<b>X</b>
Flangeless Millwork	<b>M</b>

Ceiling Thickness <sup>1,2</sup>	
Standard Ceiling	<b>S</b>
Thick Ceiling	<b>T</b>
Deep Ceiling	<b>D</b>

### Ceiling Thickness Options Table

Ceiling Type	Dimensions: in (mm)	Ceiling Thickness
Flanged/Flangeless Mud In	0.5-1 (12.7-25.4)	Standard (S)
	>1-1.5 (25.4-38.1)	Thick (T)
	>1.5-2 (38.1-50.8)	Deep (D)
Flangeless Millwork	0.5-2.0 (12.7-50.8)	No selection required

**NOTE:** See the Trim Ordering Guide for trim options and the Replacement Optic Section for optic options.

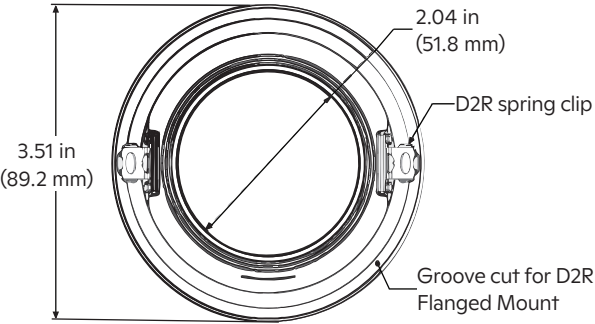
- <sup>1</sup> The ceiling thickness option required varies by ceiling interface. See Ceiling Thickness Options table above for details.  
<sup>2</sup> No ceiling thickness selection is required for millwork.

TRIM ORDERING GUIDE

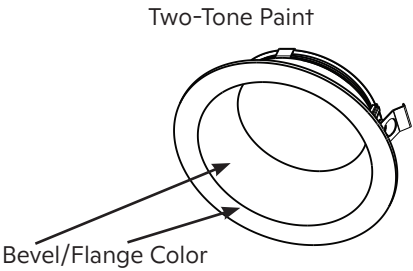
Trim

UN-	D2			
Product Line	Series			
Shape	Ceiling Interface	Aperture Profile	Trim Finish	Trim Accessory

Order code: \_\_\_\_\_



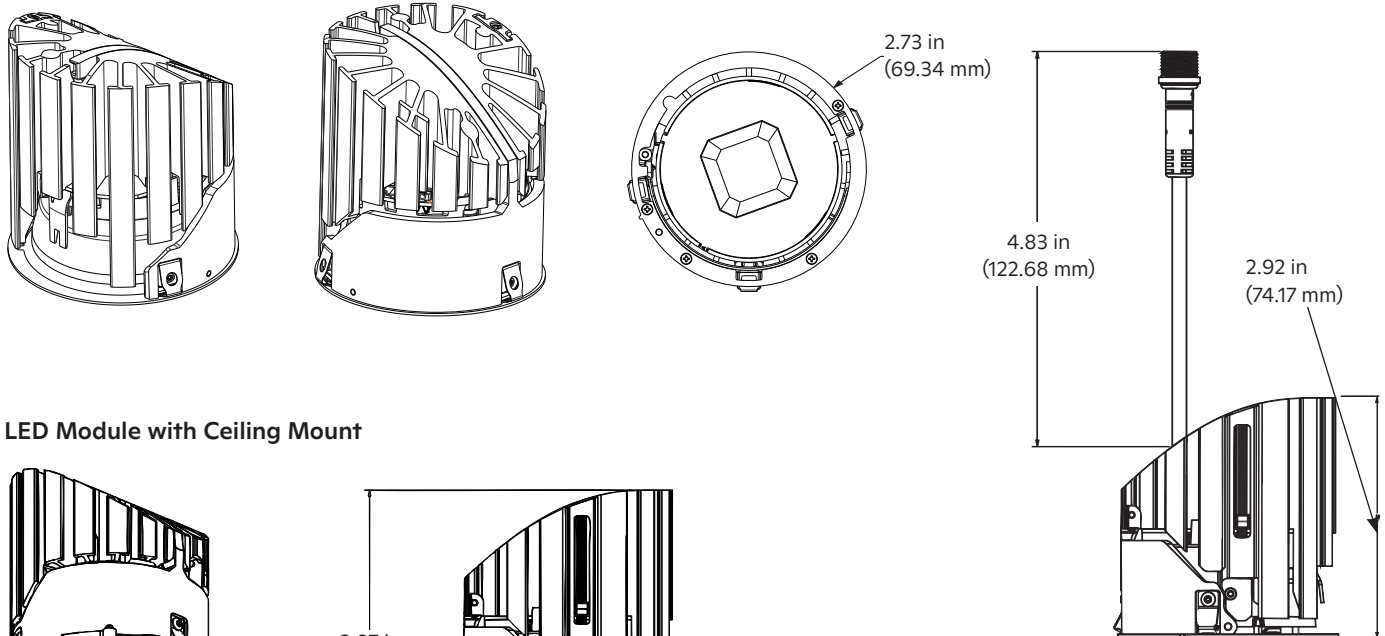
Product Line	Code	Trim Finish	
Universal	UN-	White/Paintable White <sup>1</sup>	WH
		Black	BK
		Gloss Black	GB
		Bronze	RB
		Silver	SR
		Silver/White	SW
		Black/White	BW
		Gloss Black/White	GW
		None	XX
		Trim Accessory <sup>2,3</sup>	Code
		Soft Focus Lens <sup>2,3</sup>	S1
		Frosted Lens <sup>2,3</sup>	F1
		Linear Lens (10x20) <sup>2,3</sup>	L1
		Clear Lens <sup>2,3</sup>	C1
		None	XX



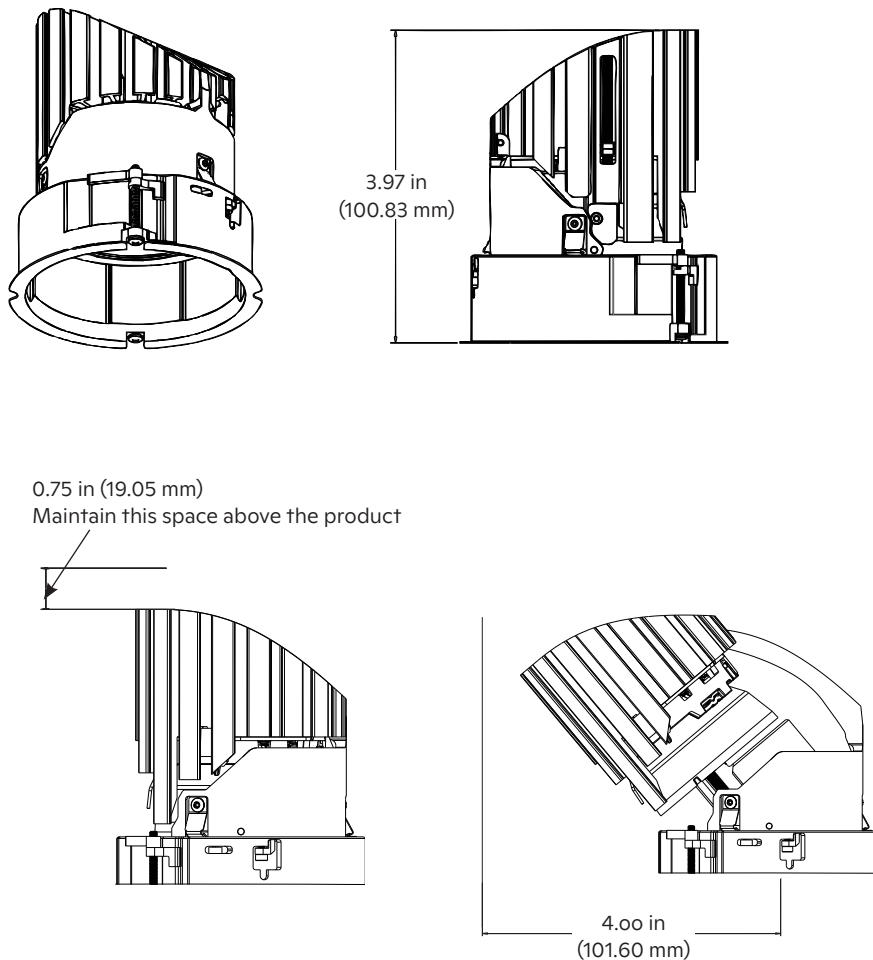
<sup>1</sup> White finish can be used as a primer for customer selected and applied paint.  
<sup>2</sup> Maximum of 2 accessories available at once across the optic and trim accessories.  
<sup>3</sup> The addition of accessory lens will reduce lumen output. See Trim/Lens Option Efficiency table.

## PRODUCT DIMENSIONS

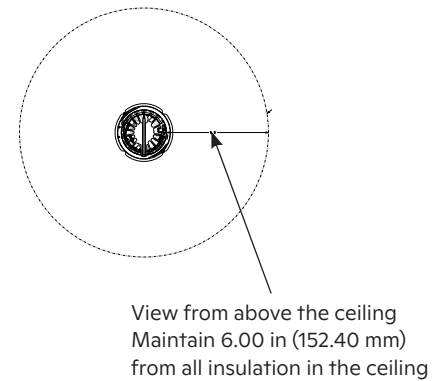
### Adjustable LED Module



### LED Module with Ceiling Mount

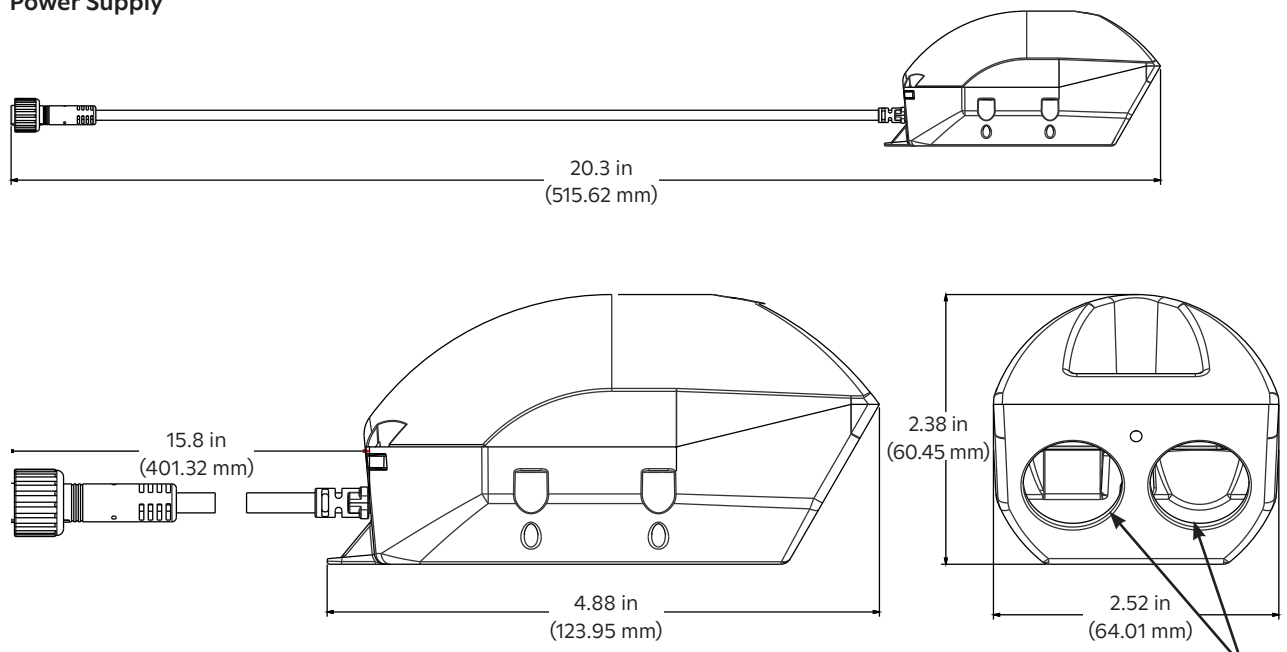


Clearance radius for a full 360 degree of rotation at 40 degrees tilt

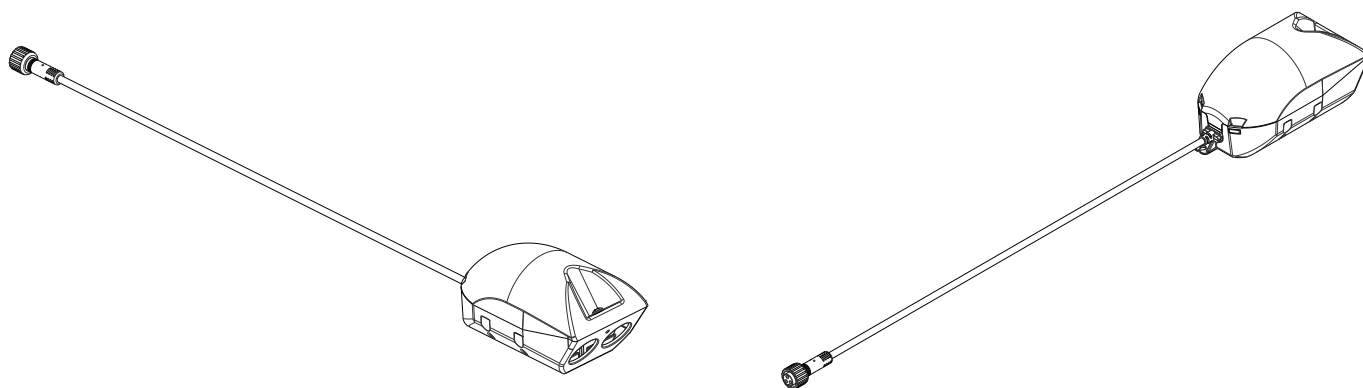


## PRODUCT DIMENSIONS (cont.)

### Power Supply

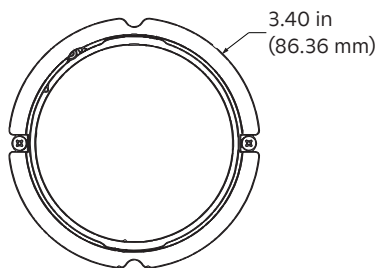
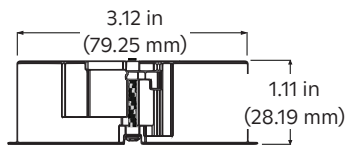


Knockout diameters are  
0.87 in (22.10 mm)

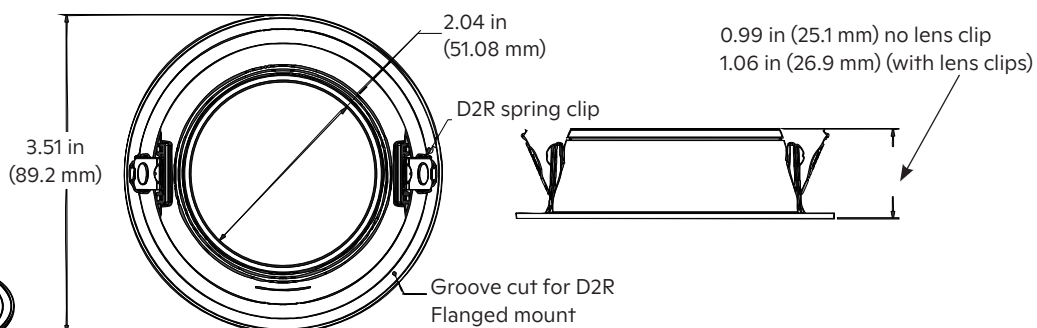
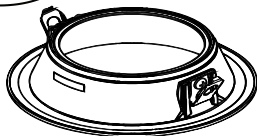
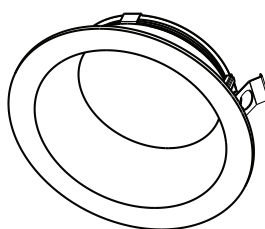


## PRODUCT DIMENSIONS (cont.)

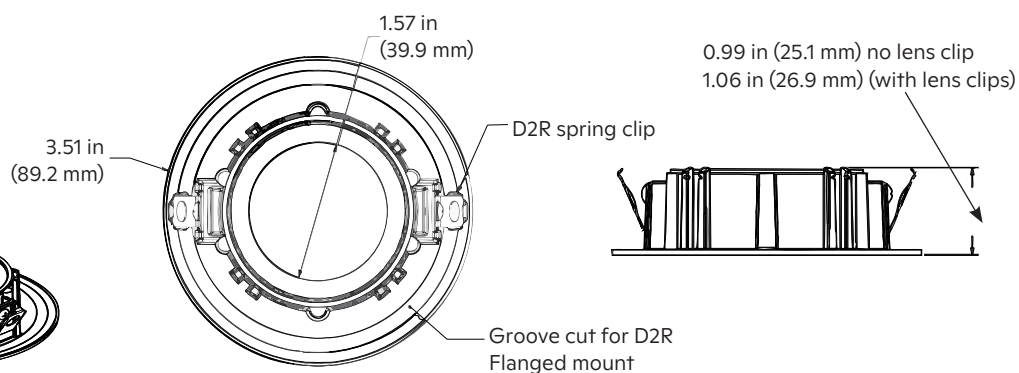
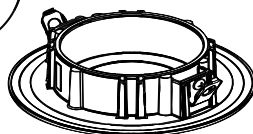
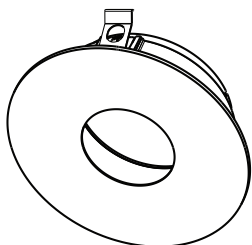
### Flanged Mount, Round



### Flanged Bevel Trim, Round

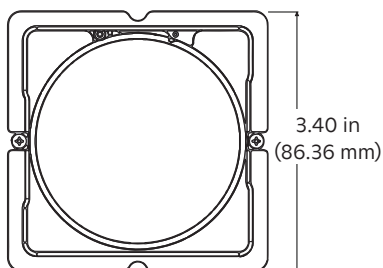
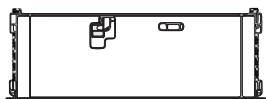
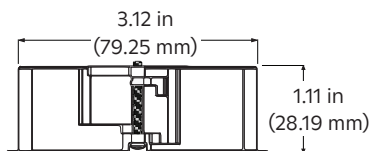


### Flanged Pinhole Trim, Round

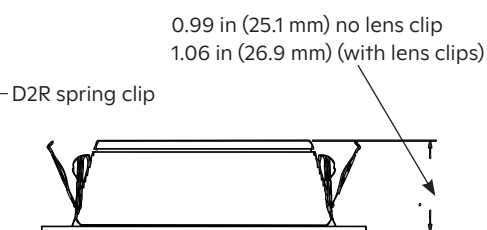
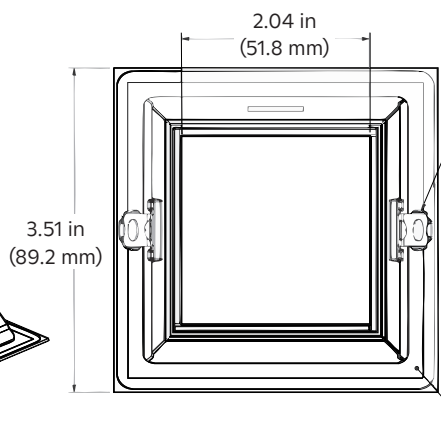
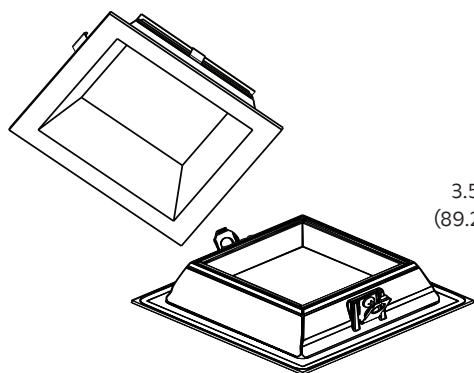


## PRODUCT DIMENSIONS (cont.)

### Flanged Mount, Square

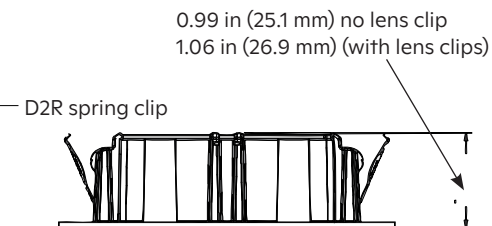
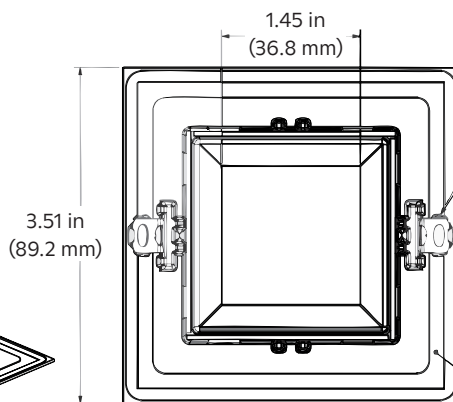
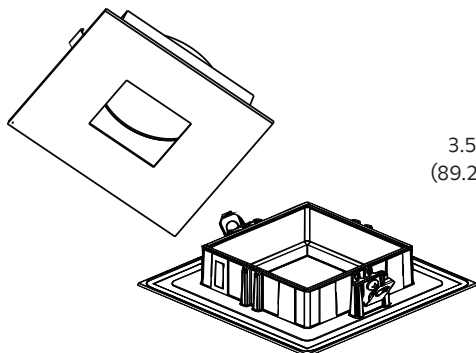


### Flanged Bevel Trim, Square



Groove cut for D2R  
Flanged mount

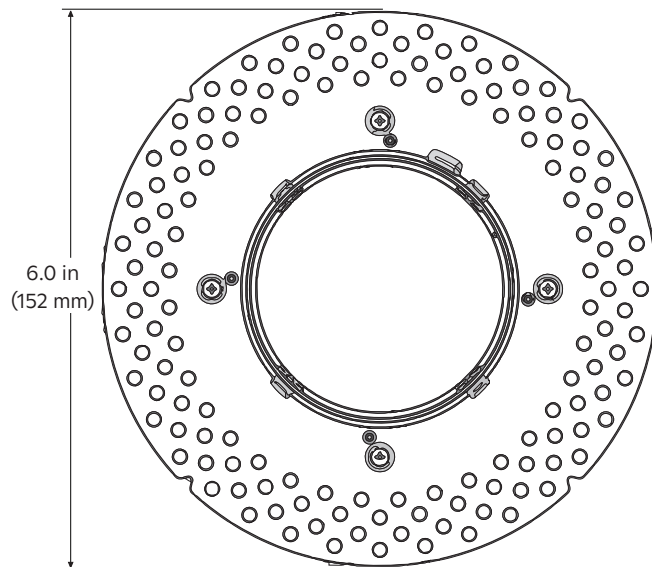
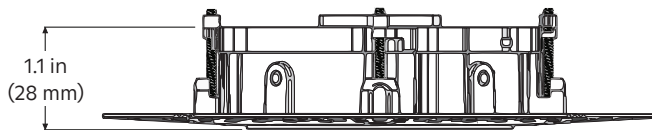
### Flanged Pinhole Trim, Square



Groove cut for D2R  
Flanged mount

## PRODUCT DIMENSIONS (cont.)

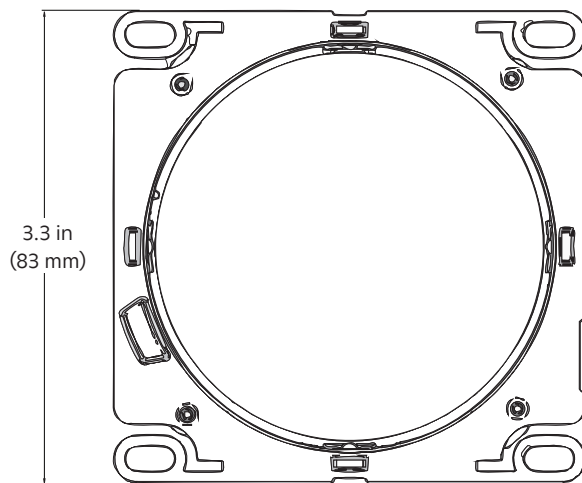
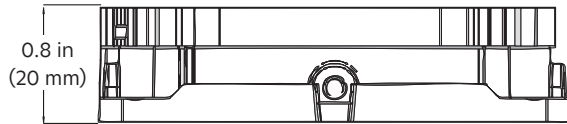
### Flangeless Mud-In Mount, Round





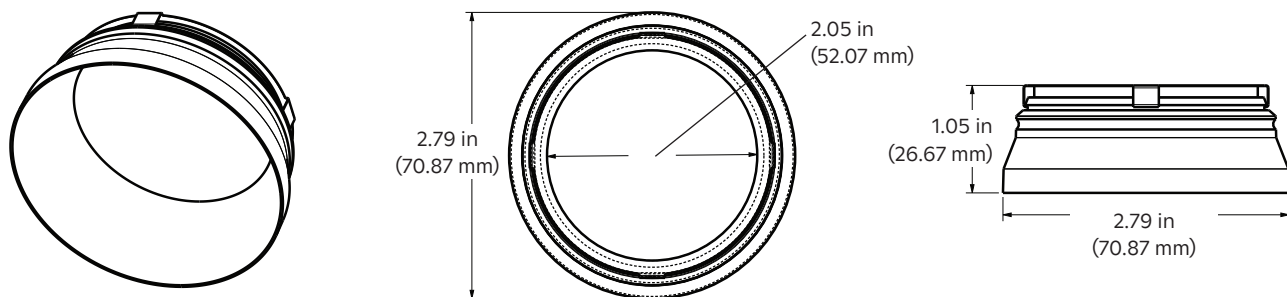
## PRODUCT DIMENSIONS (cont.)

### Flangeless Millwork Mount, Round

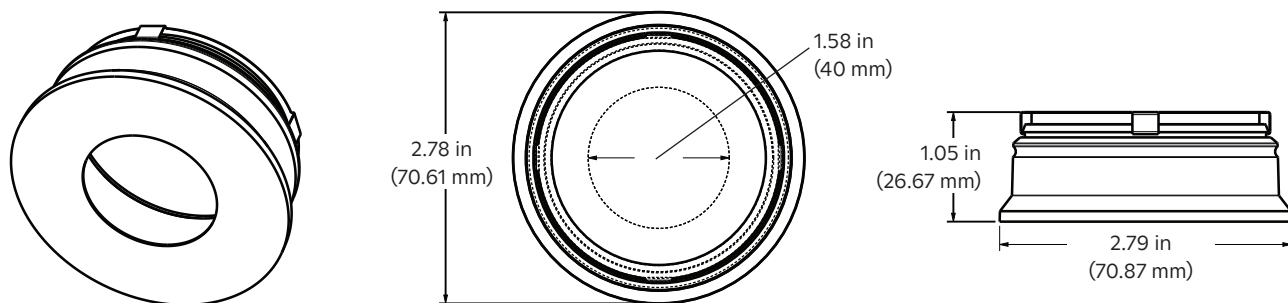


## PRODUCT DIMENSIONS (cont.)

### Flangeless Bevel Trim, Round

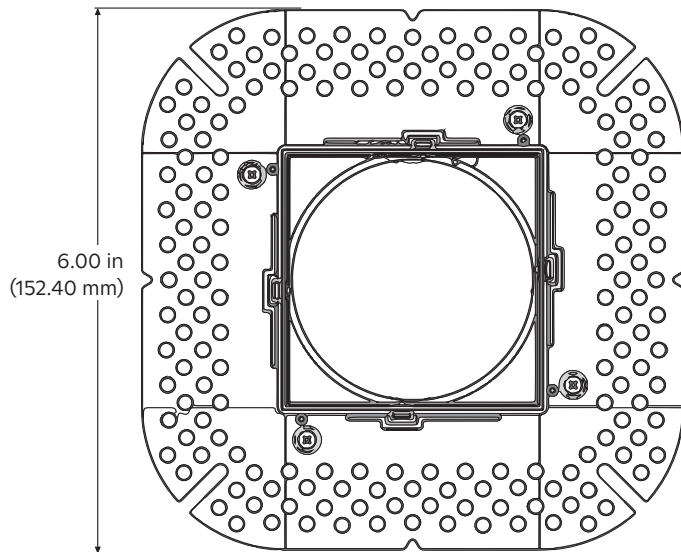
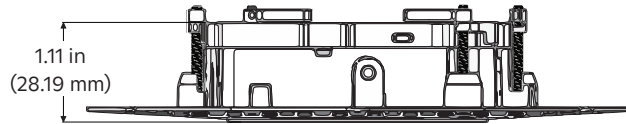


### Flangeless Pinhole Trim, Round



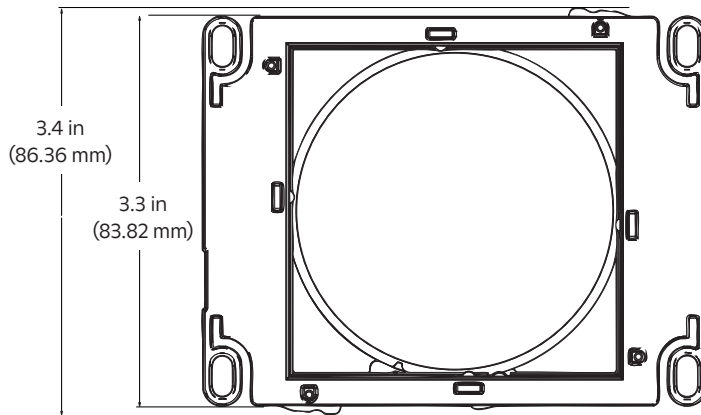
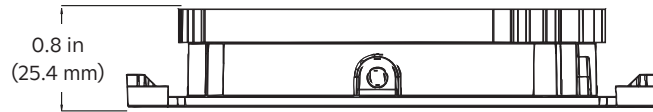
## PRODUCT DIMENSIONS (cont.)

### Flangeless Mud-In Mount Square



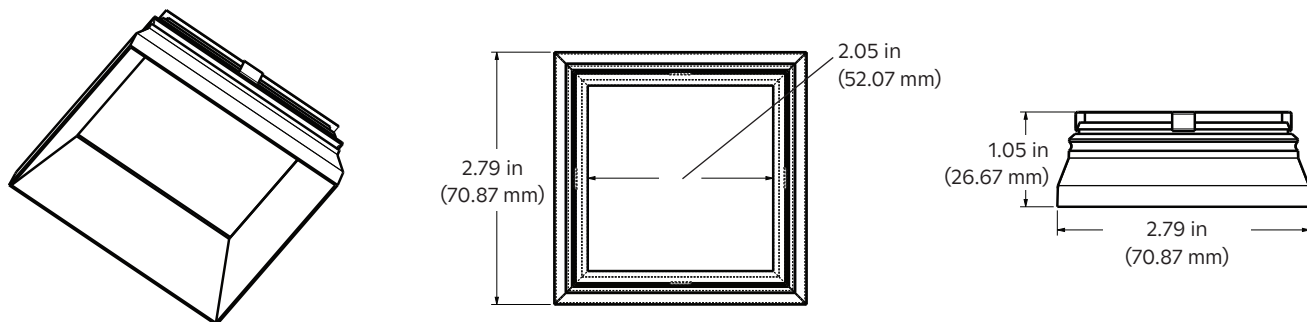
## PRODUCT DIMENSIONS (cont.)

### Flangeless Millwork Mount, Square

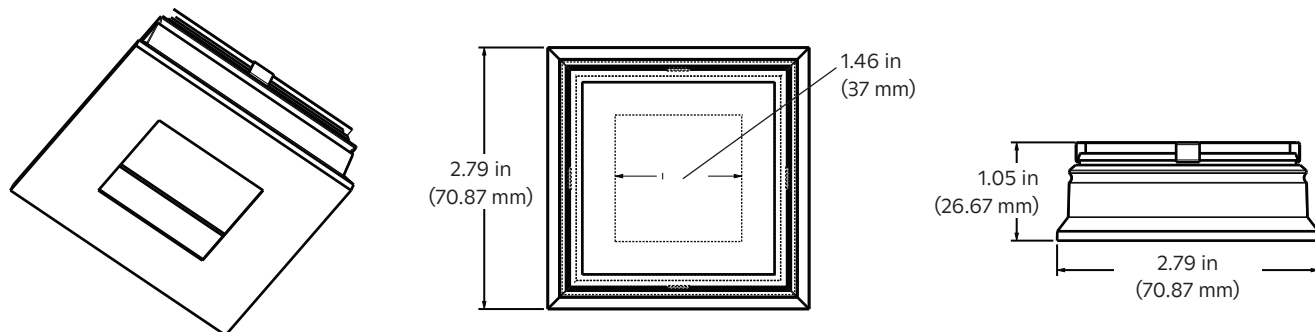


## PRODUCT DIMENSIONS (cont.)

### Flangeless Bevel Trim, Square



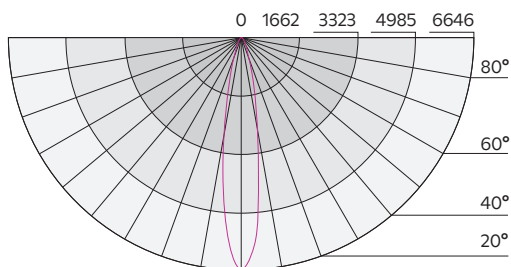
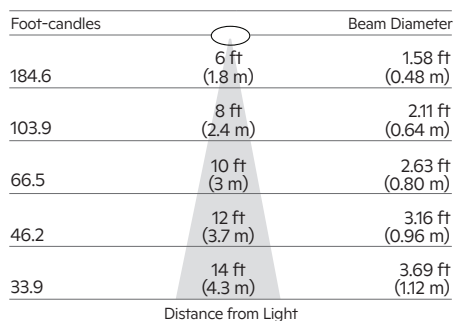
### Flangeless Pinhole Trim, Square



## PHOTOMETRIC DATA<sup>1</sup>

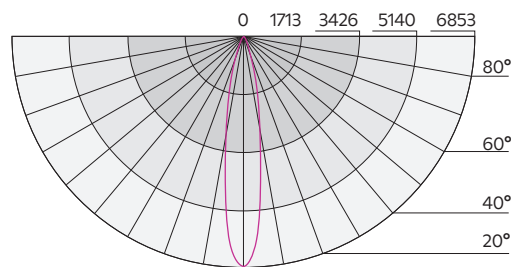
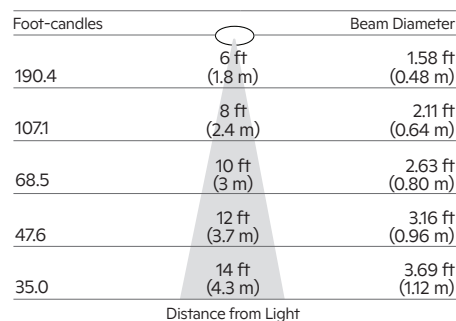
### Beam Angle: 15° Spot, Low Glare

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1815L11	16.3 W	1049	6646



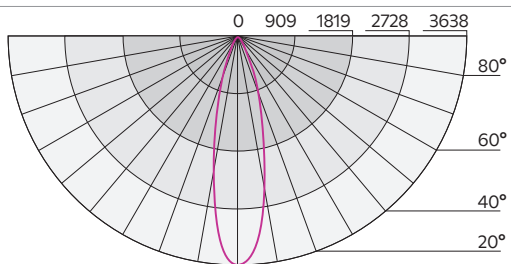
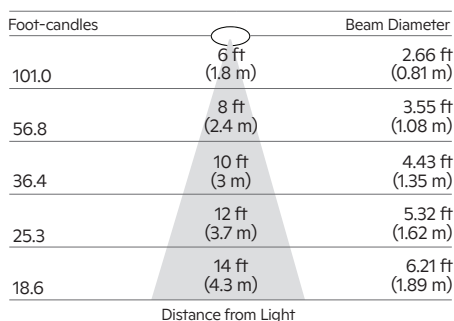
### Beam Angle: 15° Spot, High Output

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1815H11	16.3 W	1162	6853



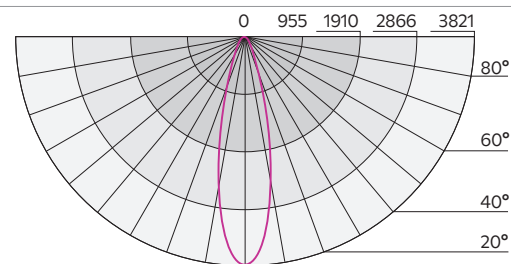
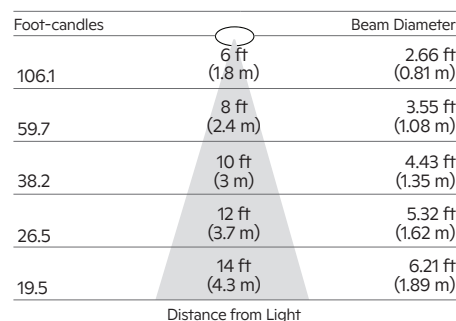
### Beam Angle: 25° Spot, Low Glare

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1825L11	16.3 W	1061	3638



### Beam Angle: 25° Spot, High Output

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1825H11	16.3 W	1185	3821

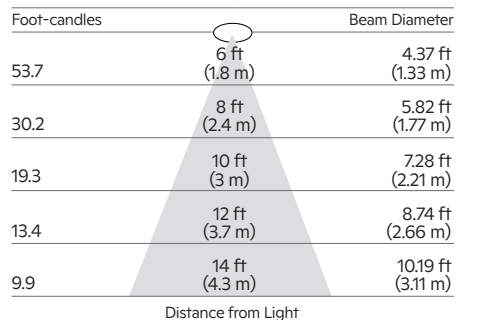


<sup>1</sup> All data is simulated to represent the typical performance expected with the following parameters: 1 in (25.4 mm) white trim, with light engine at nadir, at 3000 K, 25 °C ambient, 100% power input, default vibrancy, unless otherwise stated.

## PHOTOMETRIC DATA<sup>1</sup> (cont.)

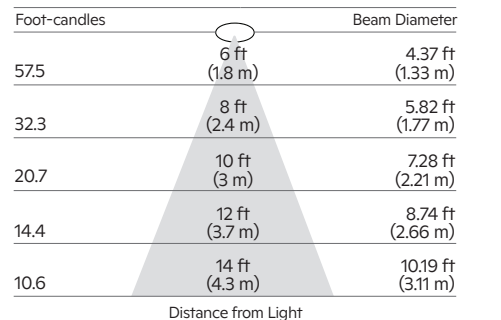
### Beam Angle: 40° Wide Flood, Low Glare

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1840L11	16.3 W	1020	1934



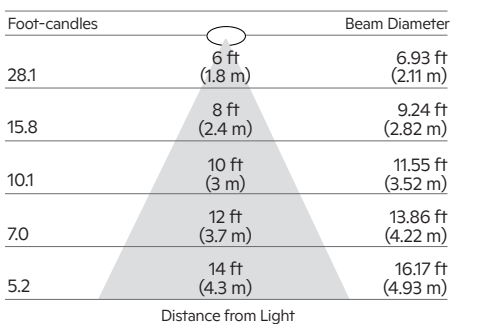
### Beam Angle: 40° Wide Flood, High Output

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1840H11	16.3 W	1240	2068



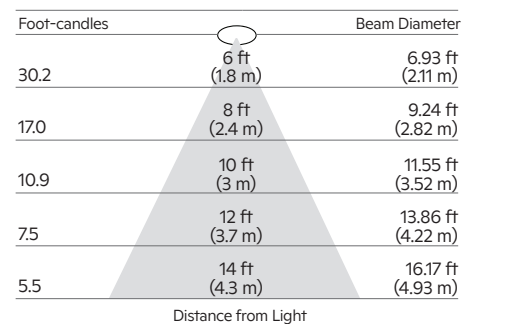
### Beam Angle: 60° Very Wide Flood, Low Glare

Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1860L11	16.3 W	986	1021



### Beam Angle: 60° Very Wide Flood, High Output

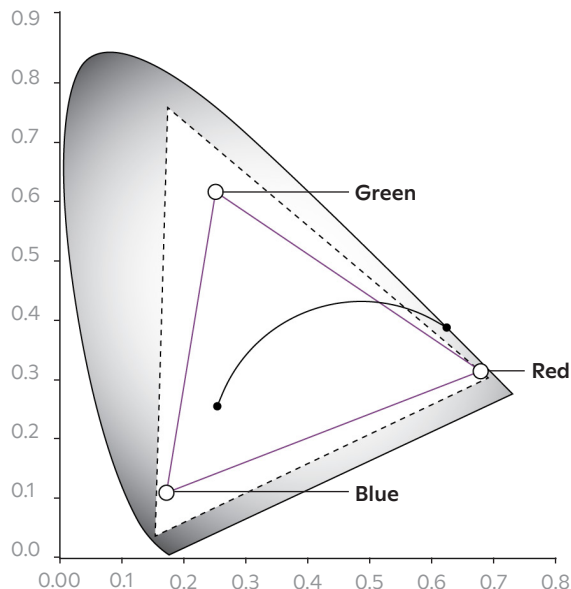
Model Number	Wattage	Delivered Lumens	CBCP
HW-D2RFSA1860H11	16.3 W	1187	1087



<sup>1</sup> All data is simulated to represent the typical performance expected with the following parameters: 1 in (25.4 mm) white trim, with light engine at nadir, at 3000 K, 25 °C ambient, 100% power input, default vibrancy, unless otherwise stated.

## WIDE GAMUT

### CIE 1931 Color Chart



Ketra's D2R LED Downlight can easily be commissioned into Lutron HomeWorks systems (Athena or myRoom XC - coming soon). The product can reproduce any color point with the triangle shaped gamut indicated in the chart to the left. With Ketra's Color Lock tool, the color point is maintained to an accuracy of one- step MacAdam Ellipse over the lifetime of the product and across operating temperature ranges.

- **Color Lock**—Color point is maintained to an accuracy of one-step MacAdam Ellipse over the lifetime of the product and across operating temperature range.
- **Expanded Gamut**—Color lock not guaranteed such that each product produces the most saturated color of which it is capable.

## D2R General Specifications

**Color Point Maintenance:** Employ closed loop optical and thermal feedback capable of maintaining color point accuracy at a one-step MacAdam ellipse over product lifetime.<sup>1</sup>

**Wireless Capability:** LED light source shall have an integrated wireless control on board.

**Color Rendering Index (CRI):** Capable of CRI greater than 90 at any point along the Black Body Curve from 2700 K to 5000 K.

**Single Source Multi-Die Modular Emitter/LED Module Design:** Employ a single source multi-die modular emitter/LED module consisting of both monochromatic and phosphor converted blue LED die.

**LED Estimated Useful Life:** Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

**Diagnostic reporting capability<sup>2</sup>:** Clear Connect-Type X (CCX) light sources provide diagnostics and built-in technology to check input voltage and wireless connectivity.

### Lighting System Capable of the Following Dimming Functionality:

1. Automatically mimicking natural daylight by shifting Correlated Color Temperature (CCT) and intensity based on time-of-day.
2. Shifting from high CCT at high intensity to low CCT at low intensity, mimicking dimming curve of an incandescent lamp.
3. Changing intensity while maintaining full color spectrum or CCT.
4. Changing full color spectrum or CCT while maintaining intensity.

**Spectral Power Distribution Manipulation:** Light system capable of manipulating the Spectral Power Distribution (SPD) by automatically adjusting distributions of color intensity while maintaining the same Correlated Color Temperature (CCT).

**Dimming Range:** Dimmable from 100 to 0.1 percent measured luminous flux.

**Color Point Range:** Single light source capable of producing 16.7 million colors and white from 1400 K to 10,000 K Correlated Color Temperature (CCT).

<sup>1</sup> Color accuracy not guaranteed in Extended Ambient Temperature range.

<sup>2</sup> For diagnostics support or more information, please contact Lighting Technical Support at [lightingsupport@lutron.com](mailto:lightingsupport@lutron.com) or 1.844.LUTRON1 (1.844.588.7661).