

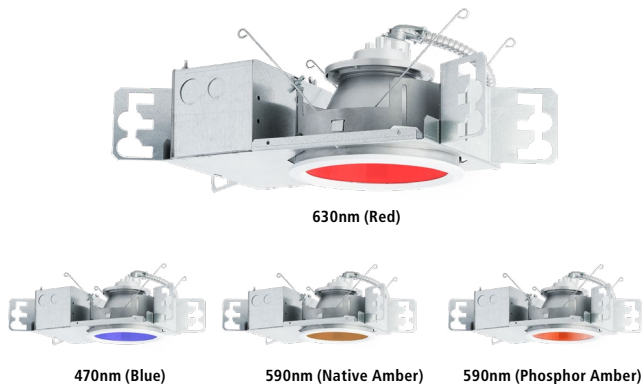
# MILLENIUM NARROW SPECTRUM

## Luminaires for High Abuse Applications

### HADL SERIES

#### PRODUCT FEATURES:

- » 6" sealed, recessed downlight with flush lens trim
- » Peace of Mind Guarantee® against breakage
- » Native 630nm Red and 590nm Amber options for narrow bandwidth, spectrally sensitive applications requiring robust luminaire construction such as coastal regions, skyglow restricted areas and vivariums
- » Phosphor-converted (PC) Amber lamping option for spectrally sensitive applications where wider bandwidth is allowable and higher lumen output and lifetime are valued
- » Blue light option for public safety applications
- » 1% Dimming via 0-10V or DALI control
- » Ligature resistant construction



#### SPECIFICATIONS

**HEAT SINK:** Die-cast aluminum with external radial fins for natural convection.

**ROUGH-IN FRAME:** 18-gauge die-formed, corrosion-resistant steel (type 304 stainless with NAT option). Vertically adjustable collar accommodates ceiling thicknesses up to 2", adjustable post-installation. Universal mounting brackets accept 3/4" and 1-1/2" lathers channel, 1/2" EMT conduit and hanger bars. Quick-access junction box accessible post-installation from above and below ceiling. Includes (4) 1/2" and (2) 3/4" knock-outs to allow straight conduit runs. Listed for (8) 12AWG, 90°C conductors and feed-thru branch wiring. Provided with FMC with electrical quick-connect to Trim Section.

**TRIM/HOUSING SECTION:** IP-rated housing section incorporates the heat sink, LED module, optics and lower trim. Flush lens trim secured with four (4) Torx® tamper-resistant, captive fasteners. See trim ordering information for available options.

**OPTICAL:** Diffused tempered glass upper lens. No light filtering elements. Available with various reflector distribution patterns and finishes. Flush lens trim options include a clear polycarbonate lens. See distribution and reflector finish ordering information for available options.

**ELECTRICAL:** Native 630nm Red, 600nm Amber, and 470nm Blue LED options (non phosphor-converted). Narrow bandwidth native sources provide optimal control over spectral emissions. Phosphor-converted (PC) Amber option at 590nm nominal peak wavelength. Phosphor-converted InGaN-based Amber source provides a higher output and efficacy as well as longer lifetime compared to the native AlInGaP-based Amber source for applications where a broader spectrum is acceptable. 120-277VAC or 347VAC, 50/60Hz electrical input with serviceable constant current driver (<20% THD, >0.90 PF). Minimum 85% driver efficiency. Standard 0-10V dimming with 1-100% range and dim-to-dark capabilities (non dim-to-dark with 347V); 165µA maximum source current. Optional eldoLED ECOdrive DALI driver with 1-100%.

**PHOTOMETRICS:** Photometry tested to the IESNA LM-79-08 standard by an ILAC/ISO17025 accredited laboratory. For photometric information, go to [www.kenall.com](http://www.kenall.com).

**WARRANTY:** Limited five (5) year LED warranty on PC Amber and Blue lamping. Three (3) year LED warranty on Red and Native Amber lamping. Peace of Mind Guarantee against breakage.

**INSTALLATION:** Suitable for ambient temperature temperatures of -30°C to +40°C, unless otherwise noted.

**LISTINGS:** Luminaire is certified to UL standards by Intertek Testing Laboratory for non-IC and Wet Location installations. IP65 rating per IEC60598. Optional CCEA compliance. Ligature resistant construction.



#### ORDERING INFORMATION (EX: HADL6-FF-2FW-12NA-W-CSS-G-RIG6-DV-DIM1)

##### TRIM

Model	Trim Style	Trim Finish	Lamp Power	Distribution	Reflector Finish	Flush Lens Type
<b>HADL6</b>	<b>FF</b>					

##### Trim Style

**FF** Flush Lens (With Fasteners - IP65)

##### Distribution

**M** Medium  
**W** Wide

##### Trim Finish

**2FW** Cold-Rolled Steel in Flat White  
**5BR** Type 304 Stainless Steel with 4B Brushed Finish  
**XBR** Type 316 Stainless Steel with 4B Brushed Finish  
**5FW** Type 304 Stainless Steel in Flat White  
**XFW** Type 316 Stainless Steel in Flat White  
**PAFW** Aluminum in Flat White

##### Reflector Finish

**FW** Flat White  
**CS** Clear Specular  
**CSS** Clear Semi-Specular

##### Flush Lens Type

**G** 1/8" Clear Polycarbonate  
**9** 1/4" Clear Polycarbonate

##### Lamp Power / Color

**10R** 10 Watt 630nm Native Red LED  
**12NA** 12 Watt 590nm Native Amber LED  
**12PA** 12 Watt 590nm PC Amber LED\*\*  
**18BL** 18 Watt 470nm Native Blue LED

##### ROUGH-IN

Rough-In	Input Voltage	Driver Type	Options
<b>RIG6</b>			

##### Rough-In

**RIG6** 6" Rough-In

##### Input Voltage

**DV** 120-277V, 50/60Hz  
**120** 120VAC, 50/60Hz  
**277** 277VAC, 50/60Hz  
**347\*** 347VAC, 60Hz

##### Driver Type

**DIM1** 0-10V Dimming to 1%  
**DALI** DALI Dimming to 1%

##### Options

**LEL** 7W Emergency Battery Backup with Remote Test Switch (0°C min. ambient)  
**NAT†** Natatorium Environment  
**FS** Fuse & Holder  
**CCEA** CCEA Approved (specified voltage required; n/a 347V)

\* N/A with DALI Driver Type. N/A with LEL option

\*\* N/A with 347V

† Requires selection of XBR or XFW Trim Finish. Rough-In frame constructed of Type 304 stainless steel in lieu of corrosion-resistant steel



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**MILLENIUM NARROW SPECTRUM**  
Luminaires for High Abuse Applications  
**HADL SERIES**

**PHOTOMETRIC PERFORMANCE**

Trim Style	Optic			Lamp Code	Lamp Color	Initial Delivered Lumens	Input Power (W)	Estd. L70 LED Life (hrs)	
	Distribution	Reflector Finish	Lens Type						
FF	M	CS	G	10R	630nm Red	400	12	36,000	
				12NA	590nm Native Amber	228	15	36,000	
				12PA	590nm PC Amber	785	15	72,000	
				18BL	470nm Blue	275	21	60,000	
			9	10R	630nm Red	391	12	36,000	
				12NA	590nm Native Amber	223	15	36,000	
				12PA	590nm PC Amber	767	15	72,000	
				18BL	470nm Blue	269	21	60,000	
		CSS	G	10R	630nm Red	375	12	36,000	
				12NA	590nm Native Amber	214	15	36,000	
				12PA	590nm PC Amber	737	15	72,000	
				18BL	470nm Blue	258	21	60,000	
			9	10R	630nm Red	367	12	36,000	
				12NA	590nm Native Amber	209	15	36,000	
				12PA	590nm PC Amber	720	15	72,000	
				18BL	470nm Blue	252	21	60,000	
		FW	G	10R	630nm Red	371	12	36,000	
				12NA	590nm Native Amber	212	15	36,000	
				12PA	590nm PC Amber	728	15	72,000	
				18BL	470nm Blue	255	21	60,000	
			9	10R	630nm Red	362	12	36,000	
				12NA	590nm Native Amber	207	15	36,000	
				12PA	590nm PC Amber	711	15	72,000	
				18BL	470nm Blue	249	21	60,000	
	W	CS	G	10R	630nm Red	450	12	36,000	
				12NA	590nm Native Amber	257	15	36,000	
				12PA	590nm PC Amber	883	15	72,000	
				18BL	470nm Blue	310	21	60,000	
			9	10R	630nm Red	440	12	36,000	
				12NA	590nm Native Amber	251	15	36,000	
				12PA	590nm PC Amber	863	15	72,000	
				18BL	470nm Blue	303	21	60,000	
			CSS	G	10R	630nm Red	382	12	36,000
					12NA	590nm Native Amber	218	15	36,000
					12PA	590nm PC Amber	750	15	72,000
					18BL	470nm Blue	263	21	60,000
		9		10R	630nm Red	373	12	36,000	
				12NA	590nm Native Amber	213	15	36,000	
				12PA	590nm PC Amber	733	15	72,000	
				18BL	470nm Blue	257	21	60,000	
		FW	G	10R	630nm Red	423	12	36,000	
				12NA	590nm Native Amber	242	15	36,000	
				12PA	590nm PC Amber	831	15	72,000	
				18BL	470nm Blue	291	21	60,000	
			9	10R	630nm Red	414	12	36,000	
				12NA	590nm Native Amber	236	15	36,000	
				12PA	590nm PC Amber	812	15	72,000	
				18BL	470nm Blue	285	21	60,000	

Subject to change without notice. Visit [www.kenall.com](http://www.kenall.com) for ies files and additional information.



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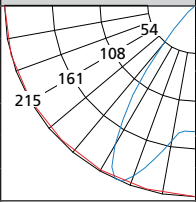
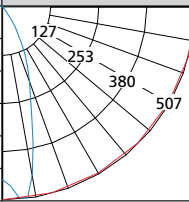
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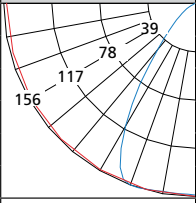
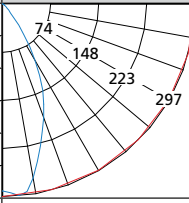
# MILLENIUM NARROW SPECTRUM

## Luminaires for High Abuse Applications

### HADL SERIES

#### PERFORMANCE

Wide Distribution Candela Curve	HADL6-FF-12NA-W-CS-G		Distance to illuminated plane (ft)	HADL6-FF-12NA-M-CS-G		Medium Distribution Candela Curve
	Initial center beam footcandles	Beam diameter (ft)		Initial center beam footcandles	Beam diameter (ft)	
	5.7	7.3	5'	18.2	2.8	
	3.9	8.8	6'	12.6	3.4	
	2.9	10.2	7'	9.3	3.9	
	2.2	11.7	8'	7.1	4.5	
	1.8	13.2	9'	5.6	5.0	
	1.4	14.6	10'	4.5	5.6	
Spacing Criteria: 1.38	foot-candle multipliers for 10R (1.75), 12NA (1.00), 12PA (3.44), 18BL (1.21)					Spacing Criteria: 0.61
Beam Angle: 72°	Beam diameter is where foot-candles drop to 50% of maximum					Beam Angle: 31°

Wide Distribution Candela Curve	HADL6-FF-12NA-W-CSS-G		Distance to illuminated plane (ft)	HADL6-FF-12NA-M-CSS-G		Medium Distribution Candela Curve
	Initial center beam footcandles	Beam diameter (ft)		Initial center beam footcandles	Beam diameter (ft)	
	6.18	5.7	5'	11.5	4.6	
	4.29	6.8	6'	8.0	5.5	
	3.15	7.9	7'	5.9	6.5	
	2.42	9.1	8'	4.5	7.4	
	1.91	10.2	9'	3.6	8.3	
	1.55	11.3	10'	2.9	9.2	
Spacing Criteria: 1.13	foot-candle multipliers for 10R (1.75), 12NA (1.00), 12PA (3.44), 18BL (1.21)					Spacing Criteria: 0.77
Beam Angle: 59°	Beam diameter is where foot-candles drop to 50% of maximum					Beam Angle: 50°

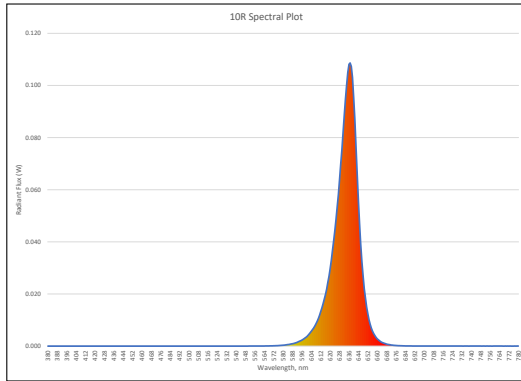


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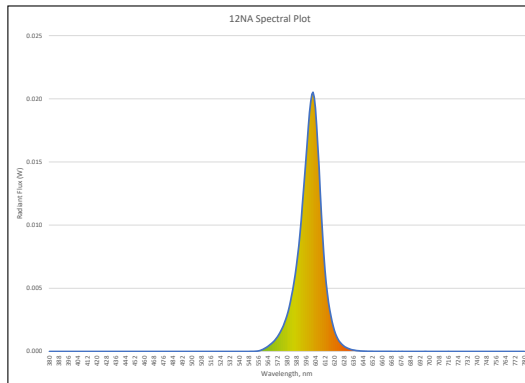
## Luminaires for High Abuse Applications

### HADL SERIES

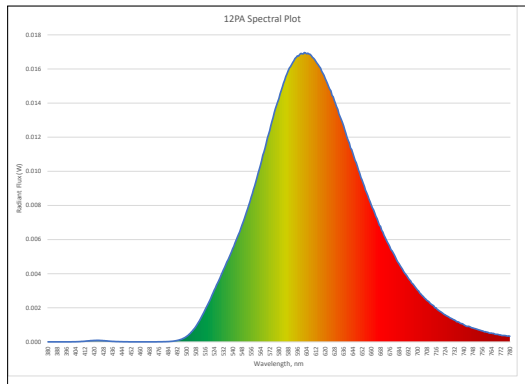
#### SPECTROPHOTOMETRIC PERFORMANCE



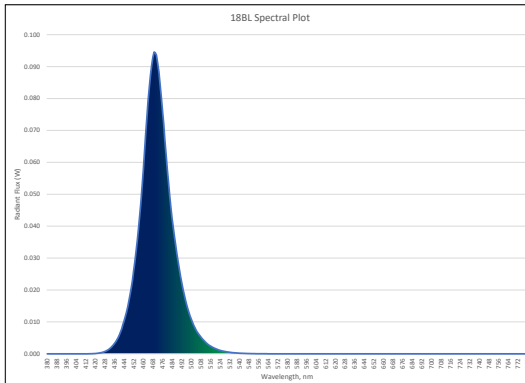
10R	
Purity	1.0003
UV (<400nm)	0.000%
Radiant Flux ( ≤560nm)	0.000%
Bandwidth	18.7 nm
Peak Wavelength	630 nm



12NA	
Purity	1.0006
UV (<400nm)	0.000%
Radiant Flux ( ≤560nm)	0.000%
Bandwidth	17.8 nm
Peak Wavelength	590 nm



12PA	
Purity	0.993
UV (<400nm)	0.003%
Radiant Flux ( ≤560nm)	13.400%
Bandwidth	101.6 nm
Peak Wavelength	590 nm



18BL	
Purity	0.9583
Bandwidth	24.4 nm
Peak Wavelength	470 nm



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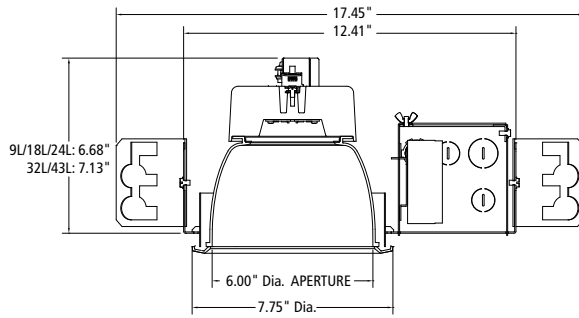
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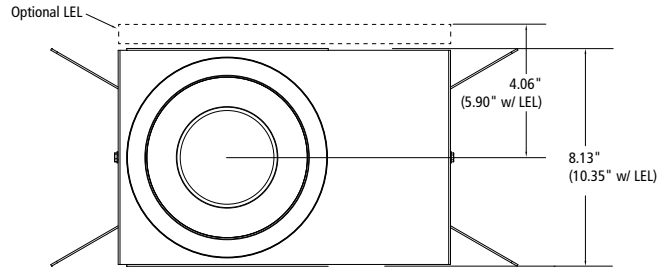
## HADL SERIES

### DIMENSIONAL DATA

CROSS SECTION



BOTTOM VIEW



RECOMMENDED CEILING CUT-OUT: 7.38" Dia.

