

MEDMASTER DOWNLIGHT

Luminaires for Medical Applications

MDL4 SERIES – TUNABLE WHITE LED

PRODUCT FEATURES:

- » 4" sealed, recessed downlight
- » Round or square aperture
- » High-output, high CRI LED lamp sources with 2700K-6500K white tuning capability



Round



Square

SPECIFICATIONS

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

ROUGH-IN FRAME: 18-gauge die-formed, corrosion-resistant steel. Vertically adjustable collar accommodates ceiling thicknesses up to 1.5", adjustable post-installation. Adjustable mounting bars for installation with wood and steel frame joists and T-grid ceiling systems spaced up to 24" on center. Quick-access junction box accessible post-installation from above and below ceiling. Includes (5) 1/2" knock-outs to allow straight conduit runs.

TRIM/HOUSING SECTION: IP-rated housing section incorporates the heat sink, LED module, optics and lower trim. Configurable with an IP64-rated Regressed or Flush lens trim that is secured to the Rough-In frame with hidden torsion springs, and an IP65 Flush lens trim secured with three (Round) or four (Square) Phillips-head, captive fasteners. Closed-cell gasketing at ceiling flange. Anti-microbial finish standard on all exposed painted surfaces. See Trim Ordering Information for available options.

OPTICAL: Round or Square aperture. Diffused tempered-glass upper lens. Flush lens trim options include a clear impact-resistant acrylic lens continuously sealed to the trim ring. Available with various reflector finishes. See Ordering Information for available options.

LED MODULE: Tunable-white LED array provides 2700K through 6500K CCT range with a two-point path. 3-step MacAdam variation allowance on each CCT. Minimum 82 CRI (R9 >0).

DRIVER: 120-277VAC, 50/60Hz electrical input (PF ≥ 0.9, THD < 20%). Minimum 85% electrical efficiency. Serviceable, constant-current multi-channel programmable driver with dual analog (0-10V) control inputs for intensity and CCT. Optional DALI (Type 8) driver. Logarithmic intensity profile with 0.1-100% range, with dim-to-dark capabilities. Linear profile on CCT adjustment. Refer to charts on page 2 for further details.

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

WARRANTY: Limited five (5) year LED warranty.

LISTINGS: Luminaire is certified to UL standards by Intertek Testing Laboratory for non-IC and Wet Location installations. IP64 and IP65 rating per IEC60598. NSF2 Splash/Non-Food Zone. Optional CCEA compliance.



ORDERING INFORMATION (EX: M4DL4-NF-5FW-28T-27/65K8-CSS-T-RIS4-277-ATW-FS)

TRIM						ROUGH-IN				
Model	Trim Style	Trim Finish	Lamp Power	Lamp Color	Reflector Finish	Flush Lens Type	Rough-In	Input Voltage	Driver Type	Options
			28T	27/65K8						
Model				Lamp Power			Rough-In			
MDL4	4" Medical - Round			28T	28W Tunable White LED		RIG4	4" Medical Rough-In - Round		
MDL4S	4" Medical - Square						RIG4S	4" Medical Rough-In - Square		
Trim Style				Lamp Color			Input Voltage			
R	Regressed Lens (IP64, DCFW Trim Finish only)			27/65K8	2700-6500K CCT Range (82 CRI min)		120	120 VAC, 50/60Hz		
NF	Flush Lens (Without Fasteners - IP64)						277	277 VAC, 50/60Hz		
FF	Flush Lens (With Fasteners - IP65)			Reflector Finish			Driver Type			
				FW	Flat White		ATW	Analog (0-10V) Dimming Tunable White Driver		
				CD	Clear Diffuse		DTW	DALI Tunable White Driver		
				CS	Clear Specular (square only)		DMX	DMX Tunable White Driver (Consult Factory)		
				CSS	Clear Semi-Specular (round only)					
Trim Finish				Flush Lens Type (n/a Regressed Trim Style)			Options			
DCFW	Die-Cast Aluminum in Flat White (R and NF Trim Style)			T	1/8" Clear High-Impact Acrylic		LEL	Emergency Battery Backup with Remote Test Switch		
2FW	Cold-Rolled Steel in Flat White						FS	Fuse & Holder		
5BR	Type 304 Stainless Steel with 4B Brushed Finish						CCEA	CCEA Approved		
5FW	Type 304 Stainless Steel in Flat White									



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PERFORMANCE

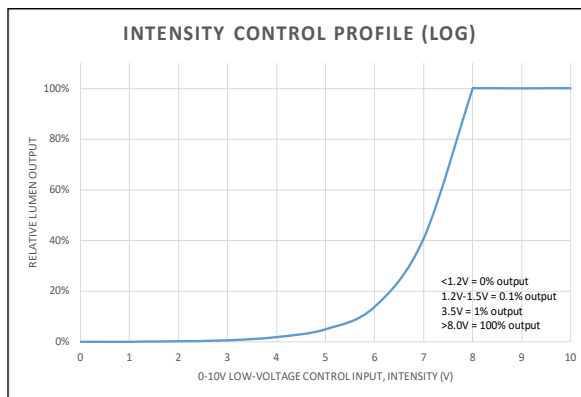
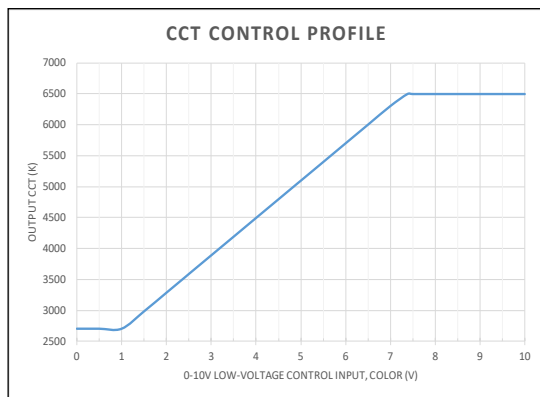
Optic				Lamp Power	Delivered Performance at 4000K			TM-21 Reported L90 (hrs)	TM-21 Reported L70 (hrs)
Aperture	Trim Style	Reflector Finish	Lens Type		Lumen Output (lm)	Efficacy (lm/W)	Input Power (W)		
Round	R	CD	n/a	28T	2,630	86	31	>55,000	>55,000
		CSS			2,665	87	31	>55,000	>55,000
		FW			2,496	82	31	>55,000	>55,000
	NF / FF	CD	2,498		82	31	>55,000	>55,000	
		CSS	2,532		83	31	>55,000	>55,000	
		FW	2,371		78	31	>55,000	>55,000	
Square	R	CD	n/a	28T	2,291	75	31	>55,000	>55,000
		CSS			2,681	88	31	>55,000	>55,000
		FW			2,355	77	31	>55,000	>55,000
	NF / FF	CD	2,177		71	31	>55,000	>55,000	
		CSS	2,546		83	31	>55,000	>55,000	
		FW	2,237		73	31	>55,000	>55,000	

Subject to change without notice. Visit www.kenall.com for ies files and additional information.

PERFORMANCE SCALING, BY LAMP COLOR

CCT (K)	27/65K8				
	LUMEN SCALE FACTOR	Ra	R9	Rf	Rg
2700	0.92	83	10	83	97
3000	0.95	84	15	83	98
3500	0.99	86	23	84	98
4000	1.00	86	26	84	98
4600	1.00	86	28	84	98
5000	1.01	86	25	83	98
5700	0.99	85	23	82	98
6500	0.99	84	16	82	96

CCT AND INTENSITY ADJUSTMENT PROFILE - ATW DRIVER TYPE



NOTE: The provided information is the typical expected performance of a single luminaire. Additional luminaires on the same 0-10V line may result in different control profiles. Fine tuning of system performance should be completed after installation is complete. To avoid CCT shift between luminaires, care should be taken to minimize voltage drop on the CCT Control line. It is recommended to limit the load on the CCT control circuit to twenty (20) luminaires or less.



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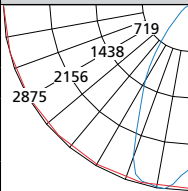
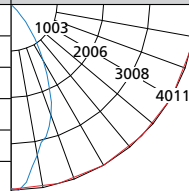
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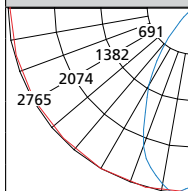
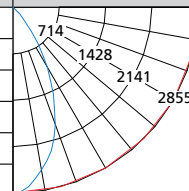
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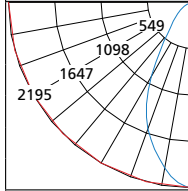
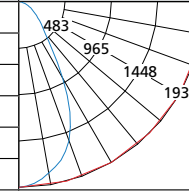
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PERFORMANCE

Round Aperture Candela Curve	MDL4-R-ssss-28T-27/65K8-CSS		Distance to illuminated plane (ft)	MDL4S-R-ssss-28T-27/65K8-CS		Square Aperture Candela Curve
	Initial center beam foot-candles	Beam diameter (ft)		Initial center beam foot-candles	Beam diameter (ft)	
	101.7	4.6	5'	159.1	4.1	
	70.6	5.5	6'	110.5	5	
	51.9	6.4	7'	81.2	5.8	
	39.7	7.3	8'	62.1	6.6	
	31.4	8.2	9'	49.1	7.5	
	25.4	9.1	10'	39.8	8.3	
Spacing Criteria: 0.93 Beam Angle: 49	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.69 Beam Angle: 45

Round Aperture Candela Curve	MDL4-R-ssss-28T-27/65K8-CD		Distance to illuminated plane (ft)	MDL4S-R-ssss-28T-27/65K8-CD		Square Aperture Candela Curve
	Initial center beam foot-candles	Beam diameter (ft)		Initial center beam foot-candles	Beam diameter (ft)	
	106.3	5.5	5'	114.2	4.8	
	73.8	6.6	6'	79.3	5.7	
	54.2	7.7	7'	58.3	6.7	
	41.5	8.8	8'	44.6	7.7	
	32.8	9.9	9'	35.3	8.6	
	26.6	11	10'	28.6	9.6	
Spacing Criteria: 0.91 Beam Angle: 57	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.79 Beam Angle: 51

Round Aperture Candela Curve	MDL4-R-ssss-28T-27/65K8-FW		Distance to illuminated plane (ft)	MDL4-R-ssss-28T-27/65K8-FW		Square Aperture Candela Curve
	Initial center beam foot-candles	Beam diameter (ft)		Initial center beam foot-candles	Beam diameter (ft)	
	87.8	5.5	5'	77.2	5.6	
	61.0	6.6	6'	53.6	6.8	
	44.8	7.6	7'	39.4	7.9	
	34.3	8.7	8'	30.2	9	
	27.1	9.8	9'	23.8	10.1	
	22.0	10.9	10'	19.3	11.3	
Spacing Criteria: 0.86 Beam Angle: 57	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.91 Beam Angle: 59



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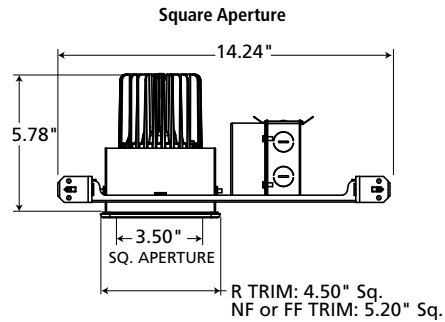
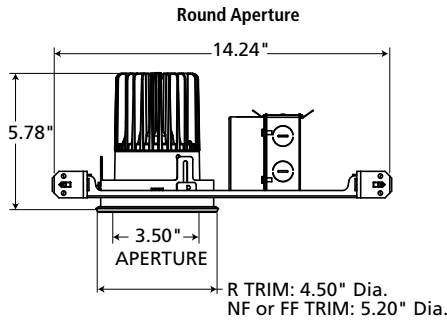
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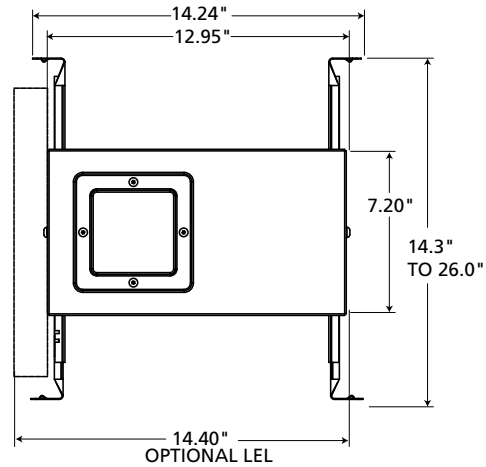
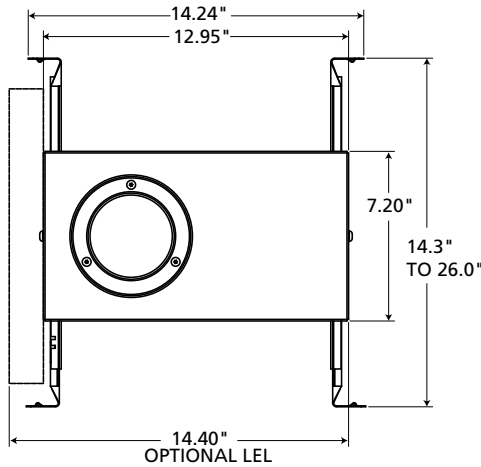
PERFORMANCE

DIMENSIONAL DATA

CROSS SECTION



BOTTOM VIEW



RECOMMENDED CEILING CUTOUT: R TRIM: 4.125" DIA.
NF TRIM: 4.750" DIA.

RECOMMENDED CEILING CUTOUT: R TRIM: 4.125" X 4.125"
NF TRIM: 4.750" X 4.750" FF TRIM: 4.875" X 4.875"

