

# MEDMASTER DOWNLIGHT

## Luminaires for Surgical Applications

### M4DL4 SERIES – TUNABLE WHITE LED

**PRODUCT FEATURES:**

- » 4" sealed, recessed downlight with regressed or flush lens trim
- » Round or square aperture
- » High-output, high CRI LED lamp sources with 2700K-6500K white tuning capability
- » Conducted emissions controlled as per MIL-STD-461G



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 80 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](http://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. Conducted emissions controlled as per MIL-STD-461G. NSF2 Splash/Non-Food Zone. Optional CCEA compliance.



**ORDERING INFORMATION (EX: M4DL4-DCFW-28T-27/65K8-CSS-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
			<b>28T</b>	<b>27/65K8</b>						
<b>Model</b>				<b>Lamp Power</b>			<b>Rough-In</b>			
<b>M4DL4</b>	4" Surgical - Round			<b>28T</b>	28W Tunable White LED		<b>RIS4</b>	4" Surgical Rough-In - Round		
<b>M4DL4S</b>	4" Surgical - Square			<b>Lamp Color</b>	27/65K8 2700-6500K CCT Range (82 CRI min)		<b>RIS4S</b>	4" Surgical Rough-In - Square		
<b>Trim Style</b>				<b>Reflector Finish</b>			<b>Input Voltage</b>			
<b>R</b>	Regressed Lens (IP64, DCFW Trim Finish only)			<b>FW</b>	Flat White		<b>120</b>	120 VAC, 50/60Hz		
<b>NF</b>	Flush Lens (Without Fasteners - IP64)			<b>CD</b>	Clear Diffuse		<b>277</b>	277 VAC, 50/60Hz		
<b>FF</b>	Flush Lens (With Fasteners - IP65)			<b>CS</b>	Clear Specular (square only)		<b>Driver Type</b>			
<b>Trim Finish</b>				<b>CSS</b>	Clear Semi-Specular (round only)		<b>ATW</b>	Analog (0-10V) Dimming Tunable White Driver		
<b>DCFW</b>	Die-Cast Aluminum in Flat White (R and NF Trim Style)			<b>Flush Lens Type (n/a Regressed Trim Style)</b>			<b>DTW</b>	DALI Tunable White Driver		
<b>2FW</b>	Cold-Rolled Steel in Flat White			<b>T</b>	1/8" Clear High-Impact Acrylic		<b>DMX</b>	DMX Tunable White Driver (Consult Factory)		
<b>5BR</b>	Type 304 Stainless Steel with 4B Brushed Finish			<b>Options</b>			<b>FS</b>	Fuse & Holder		
<b>5FW</b>	Type 304 Stainless Steel in Flat White						<b>CCEA</b>	CCEA Approved		



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### PERFORMANCE

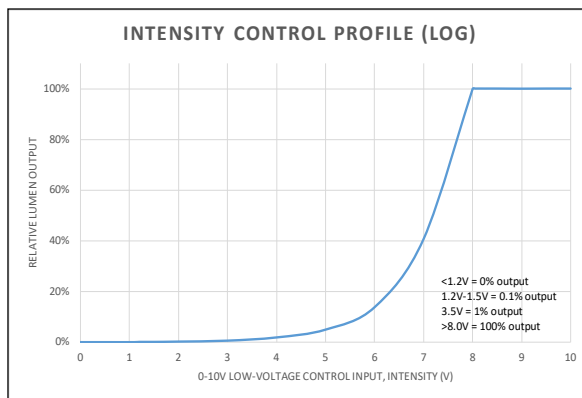
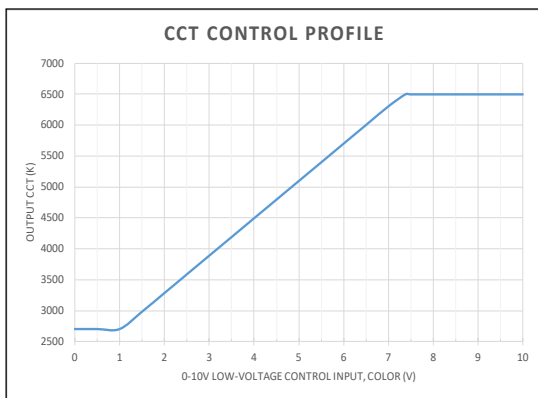
Optic				Lamp Power	Delivered Performance at 4000K			TM-21 Reported L90 (hrs)	TM-21 Reported L70 (hrs)
Aperture	Trim Style	Reflector Finish	Lens Type		Lumen Output (lm)	Efficacy (lm/W)	Input Power (W)		
Round	R	CD	n/a	28T	2,630	86	31	>55,000	>55,000
		CSS			2,665	87	31	>55,000	>55,000
		FW			2,496	82	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](http://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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### PERFORMANCE

Round Aperture Candela Curve	M4DL4-qF-rrrr-28T-27/65K8-CSS-T		Distance to illuminated plane (ft)	M4DL4S-qF-rrrr-28T-27/65K8-CS-T		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'	188.0	4.0	
	70.6	5.5	6'	130.6	4.8	
	51.9	6.4	7'	95.9	5.6	
	39.7	7.3	8'	73.4	6.4	
	31.4	8.2	9'	58.0	7.2	
	25.4	9.1	10'	47.0	8.0	
Spacing Criteria: 0.93	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.68
Beam Angle: 49						Beam Angle: 44

Round Aperture Candela Curve	M4DL4-qF-rrrr-28T-27/65K8-CD-T		Distance to illuminated plane (ft)	M4DL4S-qF-rrrr-28T-27/65K8-CD-T		Square Aperture Candela Curve
	Initial center beam foot-candles	Beam diameter (ft)		Initial center beam foot-candles	Beam diameter (ft)	
	103.4	4.6	5'	108.2	5.2	
	71.8	5.5	6'	75.1	6.3	
	52.7	6.4	7'	55.2	7.3	
	40.4	7.3	8'	42.3	8.4	
	31.9	8.2	9'	33.4	9.4	
	25.8	9.1	10'	27.1	10.4	
Spacing Criteria: 0.92	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.84
Beam Angle: 49						Beam Angle: 55

Round Aperture Candela Curve	M4DL4-qF-rrrr-28T-27/65K8-FW-T		Distance to illuminated plane (ft)	M4DL4S-qF-rrrr-28T-27/65K8-FW-T		Square Aperture Candela Curve
	Initial center beam foot-candles	Beam diameter (ft)		Initial center beam foot-candles	Beam diameter (ft)	
	79.4	5.7	5'	89.0	5.7	
	55.2	6.8	6'	61.8	6.9	
	40.5	7.9	7'	45.4	8	
	31.0	9.7	8'	34.8	9.2	
	24.5	10.2	9'	27.5	10.3	
	19.9	11.3	10'	22.3	11.5	
Spacing Criteria: 0.88	Beam diameter is where foot-candles drop to 50% of maximum					Spacing Criteria: 0.92
Beam Angle: 59						Beam Angle: 60



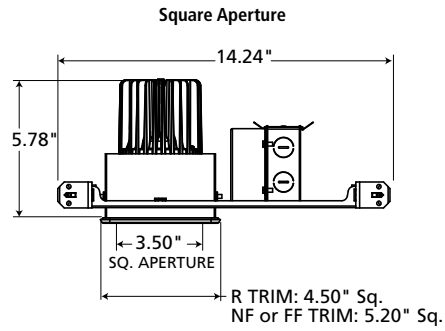
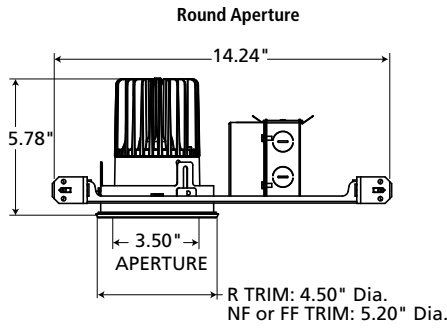
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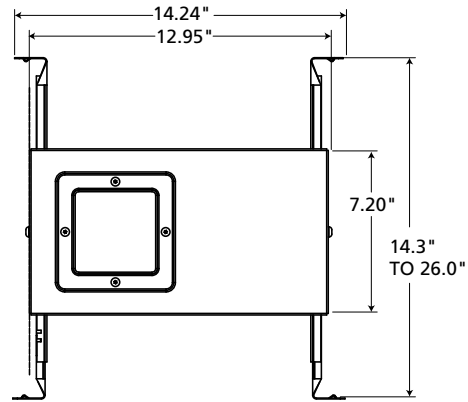
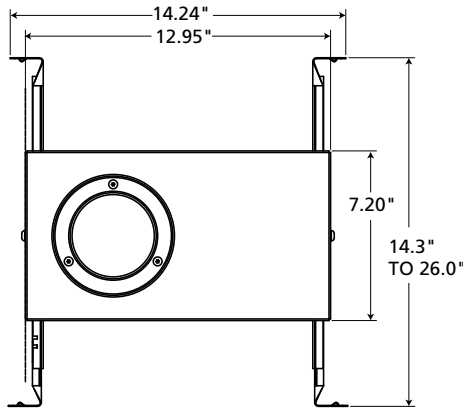
## M4DL4 SERIES – TUNABLE WHITE LED

### 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"

