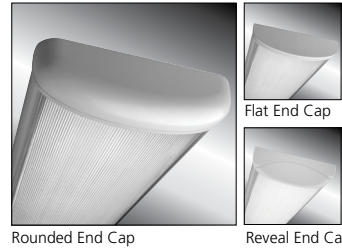


MILLENIUM STRETCH™

MLHA12 SERIES with BIOS SkyBlue™

PRODUCT FEATURES:

- » Features BIOS SkyBlue Technology to benefit daytime alertness, cognition, mood and circadian rhythms
- » High R9 value and high CRI provide biologically optimized LED spectrum for early detection of cyanosis
- » Extruded and die-cast aluminum construction
- » Peace of Mind Guarantee® against breakage



SPECIFICATIONS

HOUSING: Marine grade aluminum. Extruded body with die-cast end caps. Housing, with end caps, post assembly TGIC polyester powder coat finished – 5-step pre-treatment. See Ordering Information for available finishes.

END CAPS: Marine grade die-cast aluminum. Three styles available: Flat, Rounded and Reveal. Conduit and “Wiremold™ ready” knockouts visible only from interior of end cap (Flat and Rounded styles only).

OPTIC: UV-stabilized, high-impact extruded pearlescent polycarbonate. Smooth exterior, linear prismatic interior. Nominal thickness .156". Lens securely positioned in body channels and end caps. Lens locked in place with four (4) tamper-resistant stainless steel Torx® T-20 with center pin fasteners and sealed with closed cell gaskets. Full reflector/wire cover with 92% reflectivity.

LED MODULE: Serviceable static, dynamic or tunable mid-power Gen 2 BIOS Biological LED modules. Biological Static, Biological Dynamic, and Biological Tunable LED source with blue spectrum peak at 490nm and higher melanopic ratio. CRI 80+ with R9 > 90. Dynamic features 500K downward CCT shift when dimmed for evening applications requiring lower melanopic ratio. Tunable features 2700K CCT for evening applications. Refer to table for specific melanopic values.

DRIVER/CONTROL: 120-277VAC, 50/60Hz electrical input (PF ≥ 0.9, THD < 20%). **Biological Static:** Serviceable, constant-current single channel driver with single analog (0-10V) control input for intensity. 1-100% range with dim to dark capabilities and a linear dimming curve. **Biological Dynamic:** Serviceable constant-current driver with the BIOS Dynamic Bio-Dimming™ module keeps light output constant while reducing melanopic lux. Single analog (0-10V) control input. 1-100% dimming range with dim-to-dark capabilities and a linear dimming curve. Dimming from 100-75% reduces CCT by 500K, dimming below 75% reduces light level. **Biological Tunable:** 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.

INSTALLATION: Standard six-point mounting required for Peace of Mind Guarantee®. Suitable for installation into -30°C to 40°C ambient environments, unless otherwise noted.

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

WARRANTY: Limited ten (10) year warranty for LED Lamps. *Peace of Mind Guarantee against breakage.*

LISTINGS: Luminaire is certified to UL Standards by Intertek Testing Laboratory for Wet Location – covered ceiling mount. ETL certified IP64 per IEC 60598. Corner, horizontal wall and pendant mount installation are Damp Location only. ADA compliant.



ORDERING INFORMATION (Ex: MLHA12-48-F-MW-R-PP-90B-35K8-ATW-DV-FS)

Model	Length	End Cap	Finish	Lens	Lamp Power	Lamp Color	Driver Type	Voltage	Options	Accessories
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MLHA12	48			PP				DV		
Length	48 4'				Lamp Power			Input Voltage		
					45B 45 Watt BIOS			DV 120-277 Volts, 50/60Hz		
					67B 67 Watt BIOS					
					90B 90 Watt BIOS					
End Caps					Lamp Color			Options		
F Flat					35K8 3500K SkyBlue / 80CRI min / R9 90+			LEL Integral 10W Emergency Battery Backup		
R Rounded					40K8 4000K SkyBlue / 80CRI min / R9 90+			(45B lamp max, 0°C minimum operating temperature)		
RV Reveal								CDF Captive Diffuser Fasteners		
Finish					Driver Type			DL Damp Location (Interior use NO gasketing)		
LG Light Gray					DIM1 BIOS Biological Static with 0-10V Dimming to 1% with Dim-to-Dark Capabilities			FS Single Fuse & Holder (one per circuit)		
MB Matte Black					BIODIM1* BIOS Biological Dynamic with 0-10V Intensity Dimming to 1% and Dim-to-Dark Capabilities			PH Phillips Head Fasteners		
MW Matte White					ATW BIOS Biological Tunable White with 0-10V Control of Intensity and CCT independently on 2 separate channels			PM § Pendant Mount (Max. 3/8NPT stems by others; damp only)		
CC Custom Color (Consult Factory)					DTW BIOS Biological Tunable White with DALI Control of Intensity and CCT independently on 2 separate channels			NLW* 2700K White LED Night Light		
Lens Type								NLA* Amber LED Night Light		
PP Pearlescent Polycarbonate								Accessories		
								CMB § Corner Mount Bracket (Must be ordered with DL Option)		

§ PM and CMB not available in conjunction
* Not a BIOS source. Powered via second line in.



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MILLENNIUM STRETCH™

MLHA12 SERIES with BIOS SkyBlue™

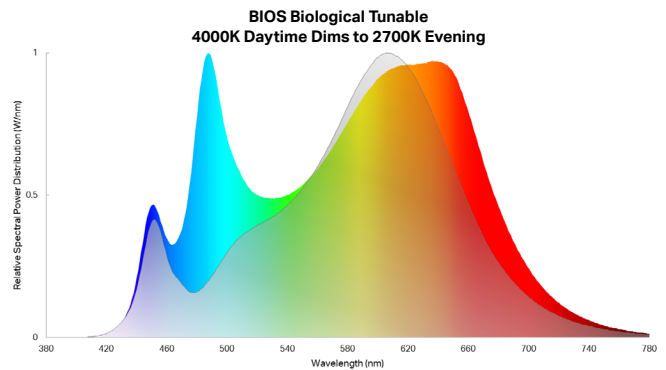
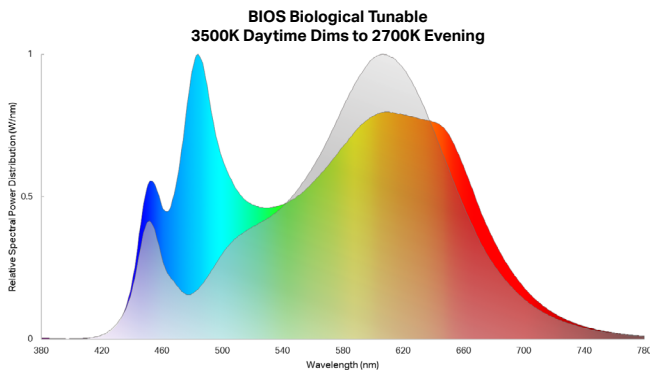
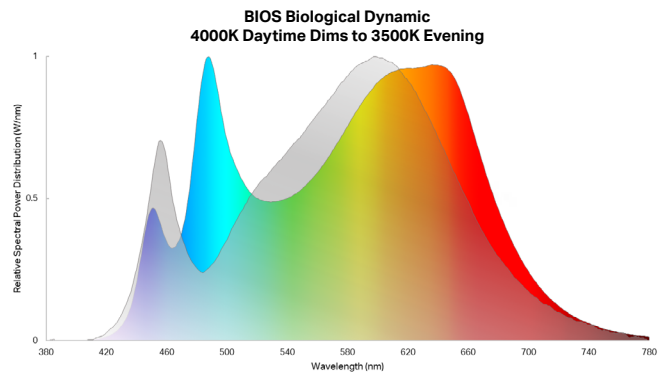
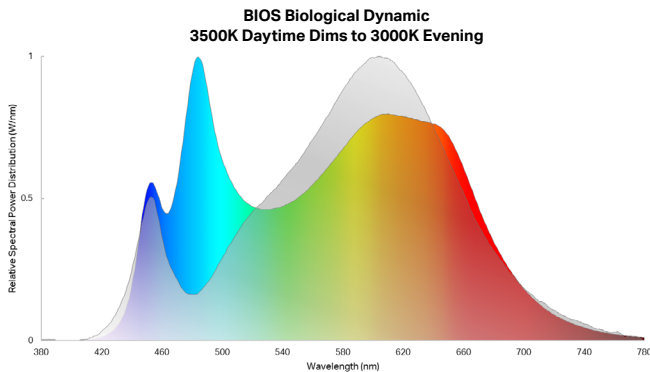
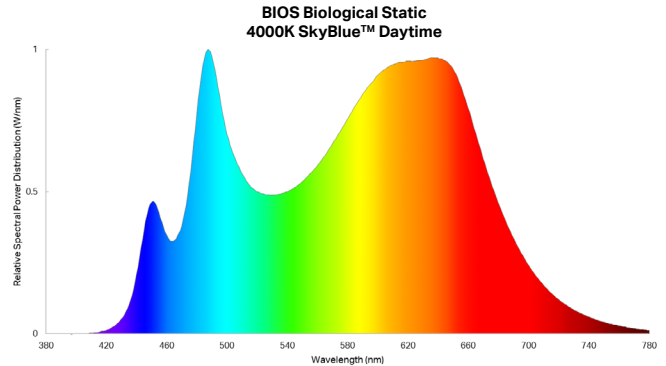
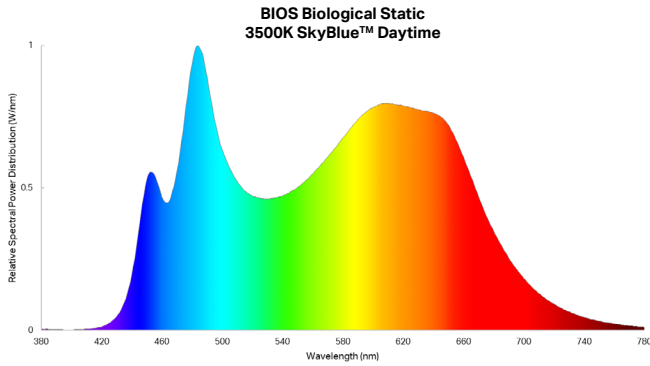
DELIVERED MELANOPIC RATIO OF 35K8 BIOS

BIOS Type	Spectral Mode	Nominal CCT	Melanopic Ratio*	
			m-EER	m-DER
Biological Static	Daytime	3500K	≥0.80	≥0.72
Biological Dynamic	Daytime	3500K	≥0.80	≥0.72
	Evening	3000K	≤0.49	≤0.44
Biological Tunable	Daytime	3500K	≥0.80	≥0.72
	Evening	2700K	≤0.47	≤0.42

DELIVERED MELANOPIC RATIO OF 40K8 BIOS

BIOS Type	Spectral Mode	Nominal CCT	Melanopic Ratio*	
			m-EER	m-DER
Biological Static	Daytime	4000K	≥0.90	≥0.81
Biological Dynamic	Daytime	4000K	≥0.90	≥0.81
	Evening	3500K	≤0.57	≤0.51
Biological Tunable	Daytime	4000K	≥0.90	≥0.81
	Evening	2700K	≤0.47	≤0.42

*Melanopic ratios are provided in two forms: (m-EER) which is calculated using the WELL v2 methodology and the corresponding CIE melanopic Daylight Equivalent Ratio, (m-DER).



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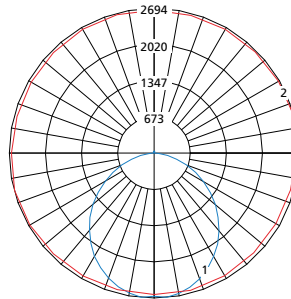
MILLENIUM STRETCH™

MLHA12 SERIES with BIOS SkyBlue™

Lamp Type	Initial Delievered Lumens		Input Power (W)	Drive Current (mA)	Estd. L70 LED Life (Hrs)
	@ 25C (lm)	Efficacy (lm/W)			
45B-35K8	4,011	82	49	100	80,000
45B-40K8	4,490	92			
67B-35K8	6,174	85	73	75	80,000
67B-40K8	6,911	95			
90B-35K8	7,915	81	98	100	60,000
90B-40K8	8,860	90			

Displayed information above is for PP lens type. Information subject to change without notice. Visit www.kenall.com for IES files and additional information.

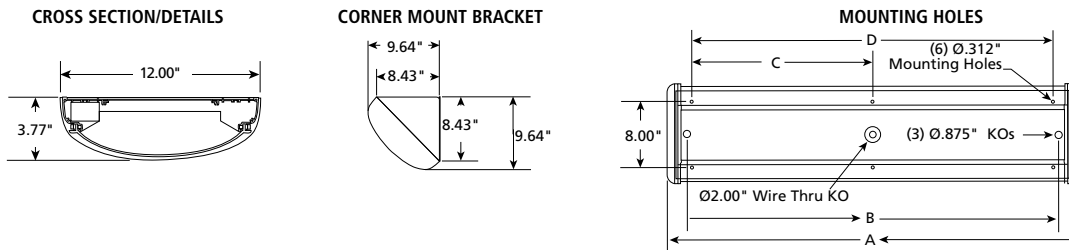
Model: MLHA12-48-F-MW-PP-1-90B-35K8-DIM1-1-DV



Maximum Candela = 2694 Located At Horizontal Angle = 15, Vertical Angle = 5

- 1 - Vertical Plane Through Horizontal Angles (15-195) (Through Max. Cd.)
- 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

DIMENSIONAL DATA



Nominal Four Foot Fixture Legend				
End Cap	A	B	C	D
R	51.13	46.31	22.50	45.00
F	49.31	46.31	22.50	45.00
RV	53.84	46.31	22.50	45.00

