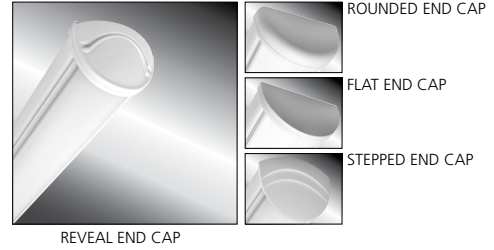


MILLENNIUM STRETCH™

MLHA5 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. Four styles available: Flat, Rounded, Reveal and Stepped. Conduit and "Wiremold™ ready" knockout visible only from interior of end cap (For 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 four-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. Corner, horizontal wall, vertical wall and pendant mount installation – damp location only. ETL certified IP64 in compliance with IEC 60598 – ceiling mount. ADA compliant.



ORDERING INFORMATION (Ex: MLHA5-48-R-MW-PP-45B-35K8-ATW-DV-FS)

Model	Length	End Cap	Finish	Lens	Lamp Power	Lamp Color	Driver Type	Voltage	Options	Accessories
MLHA5	48			PP	45B			DV		
	Length 48 4'			Lens Type PP Pearlescent Polycarbonate	Lamp Power 45B 45 Watt BIOS	Lamp Color 35K8 3500K SkyBlue / 80CRI min / R9 90+ 40K8 4000K SkyBlue / 80CRI min / R9 90+	Driver Type DIM1 BIOS Biological Static with 0-10V Dimming to 1% with Dim-to-Dark Capabilities BIODIM1 BIOS Biological Dynamic with 0-10V Intensity Dimming to 1% and Dim-to-Dark Capabilities ATW BIOS Biological Tunable White with 0-10V Control of Intensity and CCT independently on 2 separate channels DTW BIOS Biological Tunable White with DALI Control of Intensity and CCT independently on 2 separate channels	Input Voltage DV 120-277 Volts, 50/60Hz	Options LEL Integral 10W Emergency Battery Backup (0°C minimum operating temperature) CDF Captive Diffuser Fasteners DL Damp Location FS Single Fuse & Holder PH Phillips Head Fasteners PM\$ Pendant Mount (Max. 3/8NPT stems by others; damp only)	Accessories CMB\$ Corner Mount Bracket (Must be ordered with DL Option) § PM and CMB not available in conjunction
	End Caps F Flat R Rounded RV Reveal SP Stepped									
	Finish LG Light Gray MB Matte Black MW Matte White CC Custom Color (Consult Factory)									



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MILLENIUM STRETCH™

MLHA5 SERIES with BIOS SkyBlue™

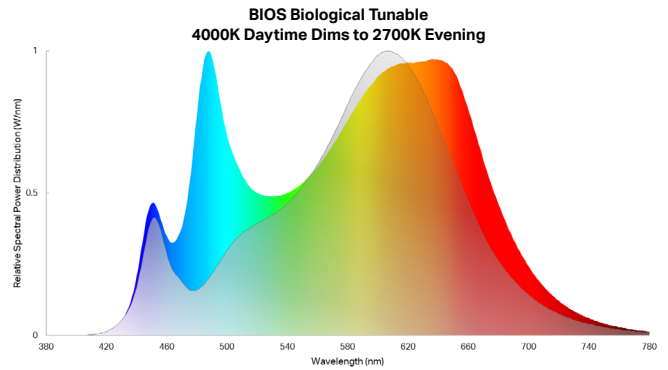
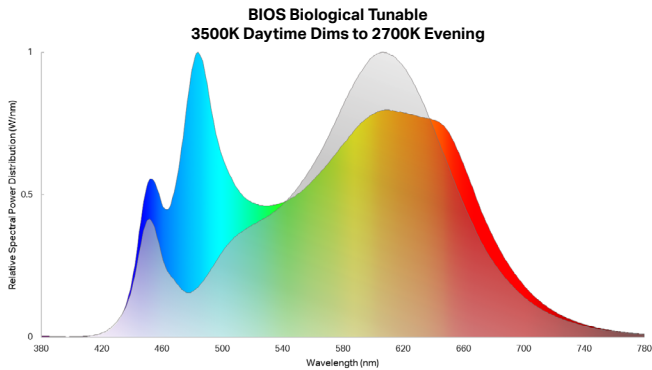
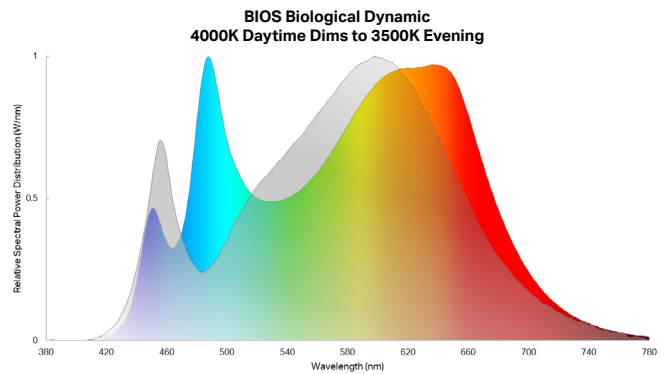
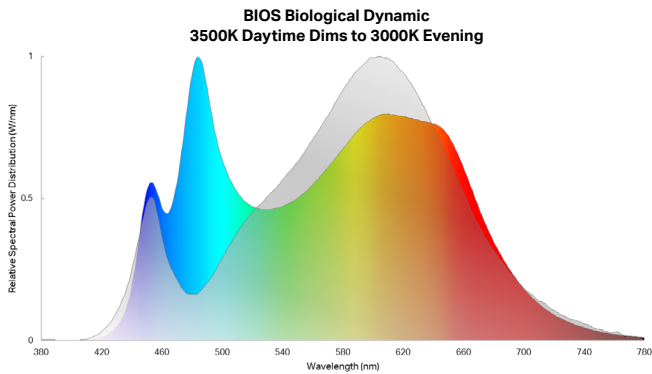
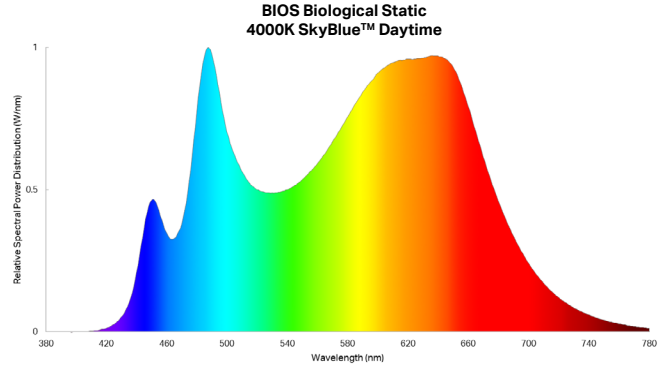
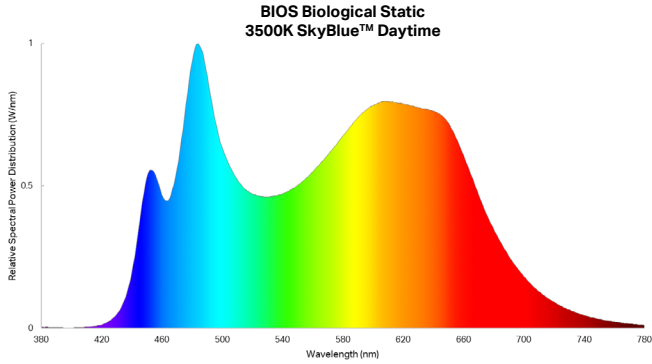
DELIVERED MELANOPIC RATIO OF 35K8 BIOS

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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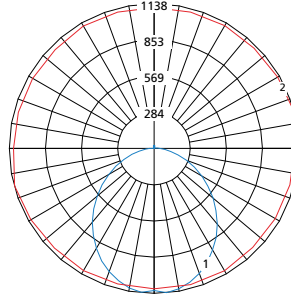
MILLENIUM STRETCH™

MLHA5 SERIES with BIOS SkyBlue™

PERFORMANCE	Initial Delivered Lumens		Input Power (W)	Drive Current (mA)	Estd. L ₇₀ LED Life (Hrs)
	@ 25C (lm)	Efficacy (lm/W)			
45B-35K8	3,799	78	49	100	80,000
45B-40K8	4,252	87			

Information subject to change without notice. Visit www.kenall.com for ies files additional information.

Model: MLHA5-48-F-MW-PP-45B-35K8-DIM1-1-DV

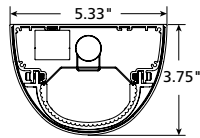


Maximum Candela = 1138 Located At Horizontal Angle = 15, Vertical Angle = 5

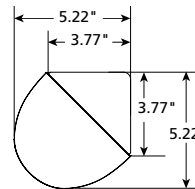
- 1 - Vertical Plane Through Horizontal Angles (15-195) (Through Max. Cd.)
- 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

DIMENSIONAL DATA

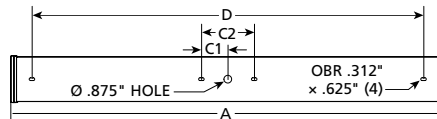
CROSS SECTION/DETAILS



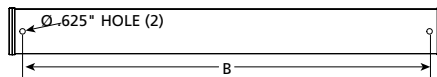
CORNER MOUNT BRACKET



SURFACE MOUNTING HOLES



PM OPTION



Nominal Four Foot Fixture Legend

End Cap	A	B	C1	C2	D
R	50.52	46.25	3.00	6.00	44.48
F	49.31	46.25	3.00	6.00	44.48
SP	52.13	46.25	3.00	6.00	44.48
RV	51.67	46.25	3.00	6.00	44.48

