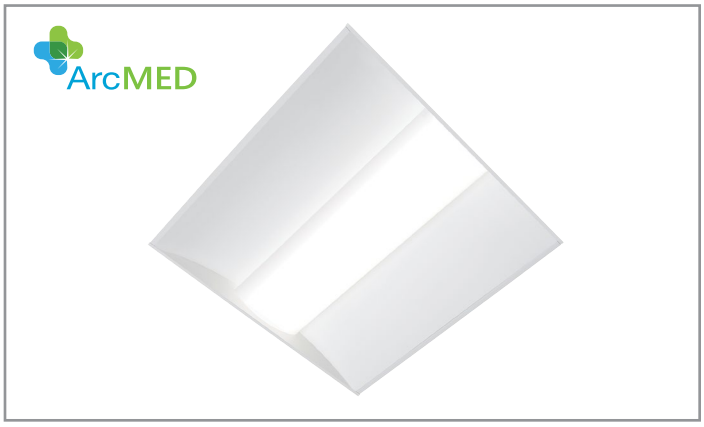
Project		**Catalog #**		**Type**	
Prepared by		**Notes**		**Date**	



Fail-Safe

FCZ2 Sealed Cruze ST 2x2

2x2 Sealed Center Basket
Sterile Environments / Behavioral Health
Curved or Square Lens
2,000 to 11,000 lumens

Typical Applications

Medical • Cleanroom • Behavior Health • Education • Laboratory • Pharmacy • Fitness Center • R&D Center

Interactive Menu

Product Certification

RoHS COMPLIANT · NSF · NSF SPLASH ZONE · IP65 · ISO3 CLASS 1 · USP 797 800 · BSL 1-4 · wet location

Product Features

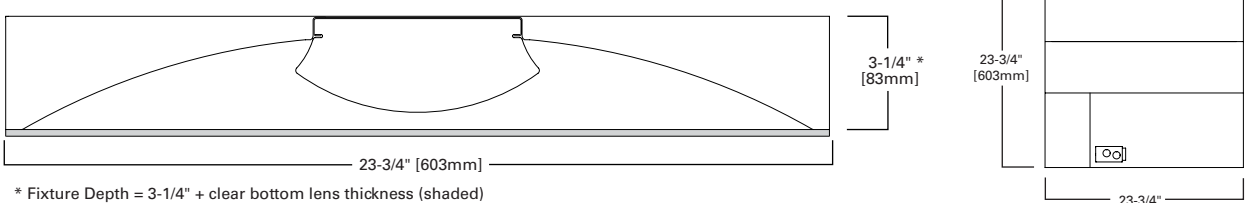
WaveLinx LITE · WaveLinx PRO · VividTune color tuning solutions · ISO CERTIFIED · IK10

LINEAR DISCONNECT Designed to provide safe and convenient means of disconnecting power · BioUp Melanopic Lighting · IALDLIRC · BAA BUY AMERICAN ACT COMPLIANT

Top Product Features

- Sealed center basket luminaire for use in high abuse, medical, wet location, and sterile applications
- BioUp melanopic lighting options enable circadian design for patient or staff care
- VividTune tunable white (3000K-5000K and 2700K-6500K) available in 80CRI or 90CRI
- Wet location standard, IP65 standard for dust and water ingress protection
- NSF listed for use in food services/food preparation environments
- Clear polycarbonate bottom lens for use in **behavioral health applications;** IK10 impact rated with polycarbonate lens
- ISO3-9 certified
- Options to meet Buy American and other domestic preference requirements

Dimensional and Mounting Details (standard curved lens shown)



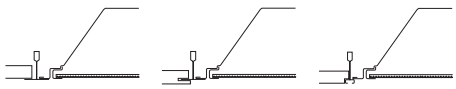
* Fixture Depth = 3-1/4" + clear bottom lens thickness (shaded)

Ceiling Compatibility

G Grid/Lay-in Standard

G Concealed T

G Slot Grid



Ceiling Type	Trim Type
Exposed Grid	Standard
Concealed T	Standard
Slot Grid	Standard
Flange	*

*See Drywall Frame Kit Accessory in Ordering Information Section

Optional Square Lens

Order Information

SAMPLE ORDER NUMBER: **22FCZ2-34HE-UNV-L82765-CP125-W2A1**

Domestic Preferences (1)	Series	Lumen Level / Efficacy Option			Shielding	Voltage (4)	CRI/CCT
[Blank]=Standard **BAA**=Buy American Act **TAA**=Trade Agreements Act	**22FCZ2=24** inch width, 2 ft. length	**Standard [Blank]** **20**=2000 Lumens **24**=2400 Lumens **32**=3200 Lumens (2) **39**=3900 Lumens (2) **44**=4400 Lumens (2)	**High Efficacy [HE]** **20HE**=2000 Lumens **24HE**=2400 Lumens **29HE**=2900 Lumens **34HE**=3400 Lumens **39HE**=3900 Lumens **44HE**=4400 Lumens	**Very High Efficacy [VHE]** **20VHE**=2000 Lumens (2) **24VHE**=2400 Lumens (2) **29VHE**=2900 Lumens (2) **34VHE**=3400 Lumens (2) **39VHE**=3900 Lumens (2) **44VHE**=4400 Lumens (2) **50VHE**=5000 Lumens (2) **55VHE**=5500 Lumens (2) **60VHE**=6000 Lumens (2) **65VHE**=6500 Lumens (2) **70VHE**=7000 Lumens (2), (3) **75VHE**=7500 Lumens (2), (3) **80VHE**=8000 Lumens (2), (3) **85VHE**=8500 Lumens (2), (3) **90VHE**=9000 Lumens (2), (3) **95VHE**=9500 Lumens (2), (3) **100VHE**=10000 Lumens (2), (3) **110VHE**=11000 Lumens (2), (3)	**[Blank]=Ribbed Frosted Acrylic Curved Lens (standard)** **S**=Smooth Frosted Curved Acrylic Lens **RDP**=Smooth Curved Lens with Round Pattern Insert **HRP**=Curved Lens with High-Efficiency Round Perf Inlay **SQR**=Square Lens	**UNV=Universal Voltage 120-277** **347V**=347 Volt (5)	**L830**=80CRI, 3000K **L835=80CRI, 3500K** **L840=80CRI, 4000K** **L850**=80CRI, 5000K **L865**=80CRI, 6500K **L930**=90CRI, 3000K **L935**=90CRI, 3500K **L940**=90CRI, 4000K **L950**=90CRI, 5000K **L965**=90CRI, 6500K **L83050**=80CRI 3000K-5000K White Tuning (6) **L93050**=90CRI 3000K-5000K White Tuning (6) **L82765**=80CRI 2700K-6500K White Tuning (6) **L92765**=90CRI 2700K-6500K White Tuning (6) **B35**=BioUp Static 3500K (7) **B40**=BioUp Static 4000K (7) **B50**=BioUp Static 5000K (7) **B2750**=BioUp Tunable 2700K-5000K (8)
Notes (1) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.		**Notes** (2) VividTune white tuning and BioUp static and dynamic options are not available with these lumen/efficacy selections. (3) Available with CD and HCD drivers only.				**Notes** (4) Products also available in non-US voltages and frequencies for international markets. (5) 347 versions 6000 lumens and below are available with emergency options, 347 versions with emergency 5LTHD, step-dim or sensors are not available.	**Notes** (6) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 cct, 1 intensity. Not compatible with other control or sensor options. (7) BioUp Static to be used with HCD driver. (8) BioUp Tunable provides correlated color temperatures (CCT) between 2700K (warm) to 5000K (cool). Must be used with W2A (for two channel 0-10V Control) or W2D (for 2 channel Dali Control) driver. See BioUp page for more information.

Flex	Bottom Lens	Driver Type	Number of Drivers
[Blank]=No Flex **A3/8-4/18GDIM**=3/8" Flex with 0-10V Dimming Leads **A3/8-2/18G**=3/8" Flex with line and common **A3/8-5/18GDIM=Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.**	**CA08=0.080" Clear Acrylic** **CA125=0.125" Clear Acrylic** **CP125=Clear Polycarbonate 0.125"** **CP187**=Clear Polycarbonate 0.187" **CP250**=Clear Polycarbonate 0.250"	**CD=0-10V Driver (10%-100% Dimming)** **HCD**=0-10V Driver (1%-100% Dimming) **5LTD**=DALI Driver (5%-100% Dimming) **5LTHD**=DALI Driver (1%-100% Dimming) **SD**=Step Dimming Driver (50% or 100% Dimming) **LH**=Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming (F) **W2A**=White Tuning, 2 ch, Analog 0-10V Intensity and CCT Control (9) **W2D**=White Tuning, 2 ch, DALI Type 8 (1%-100% Dimming) (10)	**1=1 Driver**
Flexible Metal Conduit Options Flex options available for 0-10V dimming control, DALI dimming control, emergency and night light functions. 72-inch factory-installed and pre-wired to driver, fitted to luminaire housing access plate with 90° enclosed FMC connector. Not all options may be combined and installation ratings vary by type. **A3/8-4/18GDIM series notes:** Factory installed dimming option 3/8" flexible metal conduit with 2-#18 power and ground wires and 2-#18 UL-listed jacketed 0-10V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2556. NEC® 250.118, 300.22(C), 392, 396, 330, 501, 502, 503, 530, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-A-59544 (formerly J-C-30B); all applicable OSHA and HUD Requirements. UL Classified 1-, 2-, and 3-hour through penetration with applicable fire stop product (not included). May be surface mounted, fished and/or embedded in plaster. Cable tray and approved raceway rated, install per NEC®; Environmental Air-Handling Space Installation per NEC® 300.22(C).	**Bold, Underlined** choices may result in expedited delivery. Intent is to ship in (10) days from receipt of order. Consult order fullfillment for up to date delivery schedules.	**Notes** (9) W2A used with two (2) 10V dimming control channels - CCT and intensity. (10) W2D for use with BioUP options only. White tuning CCT between 2700K and 5000K. Must be used with DALI controls; one address to control two channels - intensity and CCT. May not be used with sensing systems. For Emergency options ONLY EL10WSD can be used. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (F) Consult Marketplace Options - Lutron system pages for additional details and compatibility. Compatible only with driver series shown, and may require two or more drivers. Requires field commissioning to operate or dim. Contact Lutron at www.lutron.com	

Options	Emergency	Integrated Control	Accessories (order separately) (18)
[Blank]=No Options **GL**=Single Element Fuse **GM**=Double Element Fuse **AMW**=Anti-microbial, Powder Coat, Matte White Paint **HS**=High Security (11)	**[Blank]**=No Emergency Pack **EL7W**=7-watt, 120V-277V emergency battery pack installed (12) **EL14W**=14-watt 120V-277V emergency battery pack installed (12) **GTR2**=Generator Transfer Relay (13) **ETRD**=Emergency Transfer Relay with dimming control (13)	**[Blank]**=No Integrated Control **WLN**=WaveLinx LITE Wireless Control Node, without sensor (15), (B) **WPN**=WaveLinx PRO Wireless Control Node, without sensor (16), (A) **LWTPD1**=Enlighted Wireless Tile-mount Sensor (B)	**[Blank]**=No Accessory **FCZ2-EQCLIP-U-PK**=Pack of four Fail-Safe Cruze grid security clips (17) **DFCL-2424W-U**=2' x 2' gasketed drywall framing kit. Ships with gasket to be applied in field. Cutout Dimensions 24.25" x 24.25" (19) **DFVR/FCZ-2424W-U**=2' x 2' secured tamper resistant drywall kit. Cutout dimensions 24.25" x 24.25" (19)
Notes (11) For use in behavioral areas. Robust steel housing, clear polycarbonate lens, and tamper resistant hardware provide a ligature resistant luminaire. Ceiling cut-out 25.87" x 25.87".	**Notes** (12) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. (13) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. 347 not available. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories.	**Notes** (15) WPN node to be used with CD, HCD or W2A driver. (16) WLN node to be used with CD or HCD driver. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (A) Consult WaveLinx PRO system pages for additional details and compatibility. (B) Consult WaveLinx LITE system pages for additional details and compatibility.	**Notes** (17) An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. (18) Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information. (19) For Anti-microbial matte white finish, replace W with AMW. ex: DFCL-2424AMW-U.

Product Specifications

Construction
- Formed steel housing with integral Grid-lock feature and optional grid security clips

Integrated Controls
- Standard with 0-10V dimming. Optionally available with Lutron and Dali
- Integrated WaveLinx options provide wireless individual fixture control and enable code compliance, increased energy savings, grouping of fixtures, and connection to WaveLinx control systems

LED and Light Engine
- Available in 3000, 3500, 4000, 5000 and 6500K fixed color temperatures, or with Vividtune white tuning technology
- Drivers available in 120-277V and 347V
- TM21 life at 60,000 hours up to L85 and L70 exceeds 132,000 hours
- Tunable white options available with Cooper Lighting Solutions' VividTune
- BioUp options available in static or tunable white

Emergency Battery Options
- Optional 120-277V emergency battery available in 7W or 14W
- 90-minute backup period for code compliance
- Test switch with laser pointer and testing from floor feature for ease of use
- Generator transfer options available

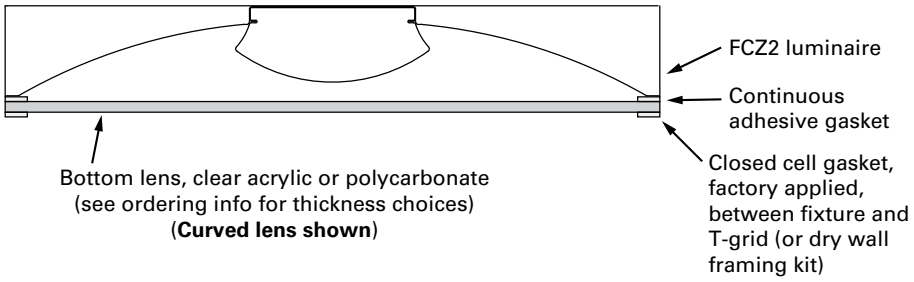
Finish
- High Gloss white finish standard

Shielding
- Standard ribbed frosted acrylic curved diffuser
- Optional clear curved diffuser with perf or decorative pattern inserts
- Optional smooth frosted acrylic curved lens (S)
- Optional metal perforated curved acrylic curved lens (RDP)
- Optional High-Efficiency curved Round Perf Inlay (HRP)
- Optional square frosted acrylic lens (SQR)

Compliance
- Tested for ISO 5 compliance. IS03 and ISO4 environments typically employ uni-directional vertical air-flow and a ventilated raised floor to remove airborne particles. Not uncommon for the entire ceiling to be either HEPA or ULPA filters. Filtered air is continually directed downward, passing through the ventilated raised floor, and recirculated – to remove more of the airborne particles than are created. Often, laminar-flow surface mount luminaires are used to illuminate the space. With proper air flow and air exchanges, proper installation, this non-shedding luminaire is acceptable for use in ISO3-9 environments.
- IC rated, cULus Wet Location
- RoHS compliant
- IP65
- IK10 - Polycarbonate Lens
- NSF rated; Splash, Non-Food Zone - Typical rating for lighting equipment not subjected to direct food contact. (e.g. ceiling mount luminaires). Examples of equipment subjected to direct food contact would be cutting boards, work-tables, mixers, can-openers, other)

Warranty
- Five year limited warranty standard

Cross Section



Energy and Performance Data

Shielding

Lumen Adjustment Factors			
S	RDP	HRP	SQR
1.05	0.67	0.85	0.96

Lumen Calculator

CCT Multiplier	80 CRI	90 CRI	BioUp Static
3000K	0.994	0.830	-
3500K	1.00	0.845	0.912
4000K	1.00	0.854	0.899
5000K	1.065	0.852	0.879
6500K	1.065	0.852	-

Lumen Maintenance

Version	TM-21 Lumen Maintenance (60,000 hours) (1)	Theoretical L70 (Hours) (2)
Standard	> 85%	> 131,000
High Efficiency	> 94%	> 290,000
Very High Efficiency	> 94%	> 290,000

Notes: (1) Supported by IES TM-21 standards. (2) Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, that explains proper use of IES TM-21 and LM-80.

Load Data (Stock Product)

THD	6%
Power Factor	0.99
Weight (lbs.)	10.6
Low Temp. Start	-20°C

Shipping Data

Catalog No.	Wt.	Pallet 49"L x 52"W x 55"H
2' x 2'	12.5 lbs.	48

Energy and Performance Data Catalog Number

Standard Efficacy Versions – Single Row of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
22FCZ2-20-XXXX-UNV-35-CD1	**17.9**	2031	113	2024	113	1984	111	1900	106	1885	105
22FCZ2-24-XXXX-UNV-35-CD1	**21.9**	2368	108	2360	108	2314	106	2216	101	2198	100
22FCZ2-32-XXXX-UNV-35-CD1	**26.7**	3170	119	3159	118	3097	116	2966	111	2942	110
22FCZ2-39-XXXX-UNV-35-CD1	**34.5**	3811	110	3797	110	3723	108	3566	103	3537	103
22FCZ2-44-XXXX-UNV-35-CD1	**42.7**	4275	100	4260	100	4177	98	4001	94	3968	93

High Efficacy Versions – Two Rows of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
22FCZ2-20HE-XXXX-UNV-35-CD1	**16.0**	1975	123	1968	123	1930	121	1848	116	1833	115
22FCZ2-24HE-XXXX-UNV-35-CD1	**19.2**	2335	122	2327	121	2281	119	2185	114	2167	113
22FCZ2-29HE-XXXX-UNV-35-CD1	**22.2**	2844	128	2833	128	2778	125	2661	120	2639	119
22FCZ2-34HE-XXXX-UNV-35-CD1	**25.8**	3272	127	3261	126	3197	124	3062	119	3037	118
22FCZ2-39HE-XXXX-UNV-35-CD1	**30.3**	3798	125	3785	125	3711	122	3554	117	3525	116
22FCZ2-44HE-XXXX-UNV-35-CD1	**35.0**	4314	123	4299	123	4215	120	4037	115	4004	114

Very High Efficacy Versions – Three Rows of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
22FCZ2-20VHE-XXXX-UNV-35-CD1	**14.2**	1941	137	1934	136	1896	134	1896	134	1801	127
22FCZ2-24VHE-XXXX-UNV-35-CD1	**17.5**	2417	138	2409	138	2362	135	2362	135	2243	128
22FCZ2-29VHE-XXXX-UNV-35-CD1	**21.7**	3010	139	2999	138	2940	136	2940	136	2793	129
22FCZ2-34VHE-XXXX-UNV-35-CD1	**25.1**	3477	139	3465	138	3398	135	3398	135	3227	129
22FCZ2-39VHE-XXXX-UNV-35-CD1	**28.6**	3941	138	3927	137	3851	135	3851	135	3658	128
22FCZ2-44VHE-XXXX-UNV-35-CD1	**32.6**	4465	137	4449	137	4363	134	4363	134	4144	127
22FCZ2-50VHE-XXXX-UNV-35-CD1	**36.2**	4924	136	4907	136	4811	133	4811	133	4570	126
22FCZ2-55VHE-XXXX-UNV-35-CD1	**39.4**	5345	136	5325	135	5222	133	5222	133	4960	126
22FCZ2-60VHE-XXXX-UNV-35-CD1	**44.1**	5905	134	5884	133	5770	131	5770	131	5480	124
22FCZ2-65VHE-XXXX-UNV-35-CD1	**47.9**	6339	132	6316	132	6194	129	6194	129	5883	123
22FCZ2-70VHE-XXXX-UNV-35-CD1	**50.3**	6782	135	6757	134	6626	132	6626	132	6294	125
22FCZ2-75VHE-XXXX-UNV-35-CD1	**54.7**	7304	134	7278	133	7136	131	7136	131	6778	124
22FCZ2-80VHE-XXXX-UNV-35-CD1	**59.1**	7821	132	7793	132	7641	129	7641	129	7258	123
22FCZ2-85VHE-XXXX-UNV-35-CD1	**63.6**	8326	131	8296	130	8135	128	8135	128	7727	122
22FCZ2-90VHE-XXXX-UNV-35-CD1	**68.2**	8819	129	8788	129	8617	126	8617	126	8185	120
22FCZ2-95VHE-XXXX-UNV-35-CD1	**72.7**	9288	128	9255	127	9075	125	9075	125	8620	119
22FCZ2-100VHE-XXXX-UNV-35-CD1	**77.7**	9769	126	9734	125	9545	123	9545	123	9066	117
22FCZ2-110VHE-XXXX-UNV-35-CD1	**87.7**	10694	122	10656	122	10448	119	10448	119	9925	113

Control Solutions

- WaveLinx LITE wireless
- WaveLinx PRO wireless
- WaveLinx CAT wired
- WaveLinx Wired

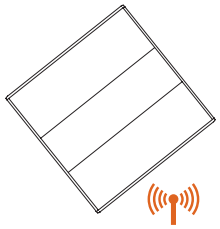
WaveLinx Digital Lighting Control Solutions

The FCZ with Wavelinx Pro Node offers no-hassle lighting control with multiple luminaire level control solutions.

WaveLinx PRO Node is a wireless lighting control solution, for connected spaces, that can be used to significantly reduce a building's energy consumption. From a single floor to an entire campus, WaveLinx PRO connects more than lighting assets; it shares aggregated data with the WaveLinx CORE platform and other building systems, so building owners can improve operations, spaces environment, and tenants' experience. WaveLinx PRO offers a rich portfolio of wireless devices, Wavelinx Pro node-enabled luminaires, and an intuitive WaveLinx mobile app for complex environments.

Wavelinx Lite Node is a cost effective, wireless digital lighting control solution, with out-of-the-box functionality, that saves energy and meets code. Customize installations for complex environments.

With Integrated WaveLinx Node



Sealed luminaires do not work well with PIR sensors. The WaveLinx sensor node (WPN, WLN) are "hidden" controls enabling wireless wavelinx control without the issues associated with PIR sensing.

Allows to:

- Connect sealed fixtures without a standard sensor option such as products for clinical space.
- Keeps luminaire aesthetics

Integrated Controls Options					
Option	**Out of the Box Functionality**	**Luminaire Level Lighting Control (LLLC)**	**Automatic Dimming Photocell**	**Occupancy Sensing**	**CCT Control**
WLN		X			
WPN		X			X

Note: WaveLinx utilizes scenes to allow users to change an area's fixtures Correlated Color Temperature (CCT) and intensity using commissioned manual wireless wallstation scene control. To enable CCT adjustments through WaveLinx, include WPN device in addition to VividTune or BioUp technologies for integrated fixture control.

Systems comparison chart

Cooper Lighting Solutions provides many lighting system solutions designed to satisfy code requirements and meet the unique needs of any project.

Luminaire with standalone sensor

Standalone Spaces WaveLinx LITE

Standalone Spaces WaveLinx CAT

Networked Spaces WaveLinx PRO

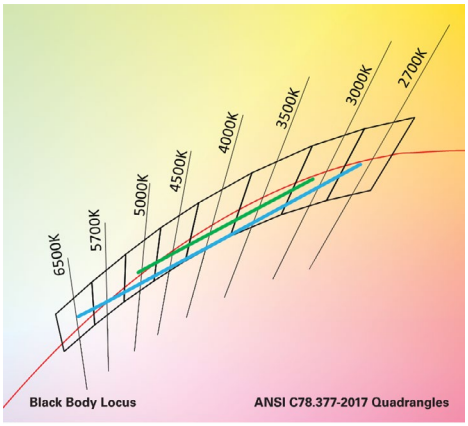
Enterprise WaveLinx CORE

Occupancy	Yes	Yes	Yes	Yes	Yes
Daylighting	Yes	Yes	Yes	Yes	Yes
Wallstations	–	Yes	Yes	Yes	Yes
Gateways	–	–	–	1 WAC	300 WACs
Devices (MAX)	–	40 per Area (1120 per space)	40 per Area	200 per WAC2	32,500 per CORE Enterprise
Software	–	WaveLinx LITE Mobile App	WaveLinx CAT Mobile App	WaveLinx Mobile App	CORE
Areas	–	28 per Space	Unlimited	50 per WAC2	up to 3,000
Zones	–	16 per Area	16 per Area	16 per Area	up to 9,000
Scheduling	–	–	–	Local	Global
VividTune™	–	–	–	Yes	Yes
Plug-Load Control	–	Yes	Yes	Yes	Yes
Low-Voltage Power	–	–	Yes	Yes	Yes
Integration	–	–	–	–	BACnet, API
Dashboards	–	–	–	–	Energy, Occupancy
Configuration	–	Installer	Installer	Technician	Technician / IT

VividTune color tuning solutions

22 FCZ LED with VividTune Tunable White

VividTune tunable white luminaires from Cooper Lighting Solutions deliver high-quality light in a broad range of continuously variable color temperatures and intensities. Create a dynamic environment by adjusting the ambient light warmer or cooler to influence mood, support the task at hand, or create a dramatic ambience. The ability to control correlated color temperature and intensity separately using simple controls is the next evolution of LED lighting for the commercial, educational, healthcare and hospitality space. The unparalleled flexibility and number of available lighting environments enable users to find the right light with tunable white.



Energy and Performance Data

Tunable White - Lumen Adjustment Factors

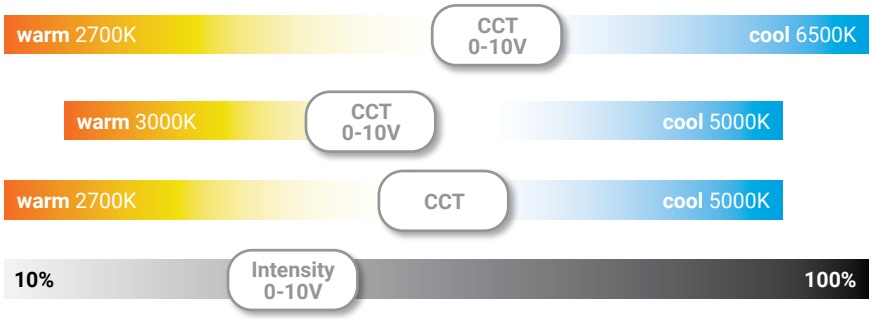
CCT	VividTune 3000K-5000K		VividTune 2700K-6500K		BioUp Tunable White 2700K-5000K	
	80 CRI	90 CRI	80 CRI	90 CRI	CRI	Lumen Adjustment
2700K	-	-	0.903	0.771	95	0.938
3000K	0.929	0.765	0.928	0.801	94	0.929
3500K	0.983	0.836	0.961	0.842	90	0.912
4000K	1.033	0.903	0.981	0.868	87	0.899
4500K	1.042	0.918	0.999	0.891	85	0.890
5000K	1.042	0.918	1.013	0.909	84	0.879
6500K	-	-	1.028	0.933	-	-

2' x 2' FCZ LED - Example of Approximate Lumen Calculation

	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #	BioUp Tunable White
CCT Setting	22FCZ2-40HE-UNV-L835-CD1-U	22FCZ2-40HE-UNV-L83050-W2A1-U	22FCZ2-40HE-UNV-L93050-W2A1-U	22FCZ2-34HE-UNV-B2750-W2A1-U
2700K	-	3058	2611	3176
3000K	-	3641	2998	3146
3500K	4029	3853	3275	3088
4000K	-	4046	3537	3044
4500K	-	4084	3599	3014
5000K	-	4084	3599	2976
6500K	-	3481	3159	-

Controlling VividTune and BioUp Tunable White

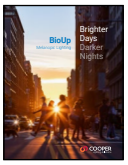
From wall dimmers to wireless controls, tunable white luminaires are compatible with industry standard 0-10V and DALI controls. One channel to control intensity (brightness) and a second channel to adjust CCT.



Proven Research. Industry Recognized.

BioUp
Melanopic Lighting

See better | Feel better | Function better



See BioUp brochure for more details

ANSI/IES RP-46-23

Illuminating Engineering Society

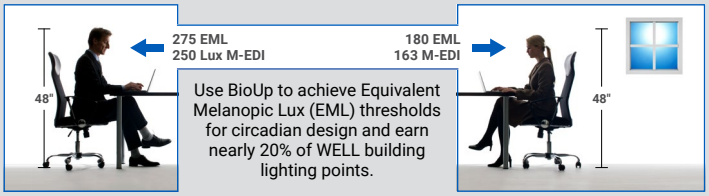
RECOMMENDED PRACTICE:
SUPPORTING THE PHYSIOLOGICAL AND BEHAVIORAL EFFECTS OF LIGHTING IN INTERIOR DAYTIME ENVIRONMENTS
AN AMERICAN NATIONAL STANDARD

ANSI/IES RP-46-23 / TM18 published March 2024 based on over 40 years of research.

"…circadian clock synchronization is paramount to the body's efficient and appropriate functioning." – TM18

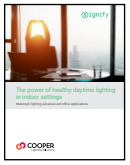
INTERNATIONAL WELL BUILDING INSTITUTE™

BioUp solutions maximize WELL points for Circadian Lighting Design (L03):



Use BioUp to achieve Equivalent Melanopic Lux (EML) thresholds for circadian design and earn nearly 20% of WELL building lighting points.

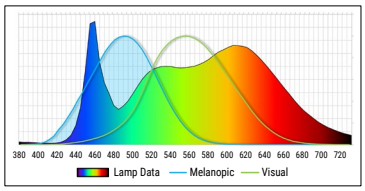
MDER, M-EDI and **EML** are key metrics used to quantify non-visual performance of indoor lighting systems.



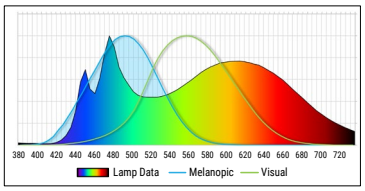
See BioUp white paper for more details

MDER - Melanopic Daylight Efficacy Ratio (MDER) measures the amount of light stimulating to the melanopsin receptors.

Standard 4000K LED
MDER = .62



BioUp 4000K LED
MDER = .82



30% boost Biological impact
compared to traditional LED sources

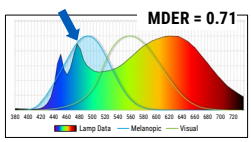
CCT	LED MDER ~83 CRI	BioUp Static		BioUp Dynamic	
		MDER	CRI	MDER	CRI
2700K	0.44	–	–	0.43	95
3000K	0.49	–	–	0.54	94
3500K	0.56	0.71	90	0.71	90
4000K	0.64	0.84	87	0.82	87
5000K	0.77	0.98	84	0.98	84

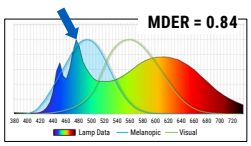
BioUp enhances the LED spectrum with cyan light at 475nm increasing the biological impact of the light to enhance our circadian rhythm which regulates our sleep/wake cycle, daytime engagement, and mood – ***all without distorting visual color impression.***

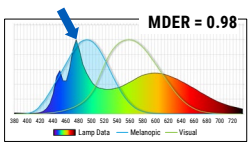
Static (non-tunable)

Static BioUp is used when simple Melanopic Lighting is desired at all times.

Arrow in graph shows BioUp spectrum boost is at 475nm where non-visual biological response is enhanced.







3500K or 4000K or 5000K

Cyan light component always present

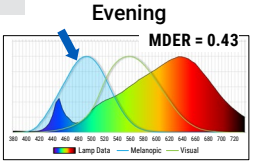
Dimming Control

› no CCT control needed

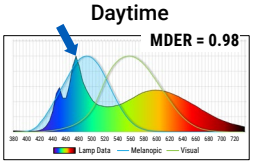
Dynamic - (Tunable)

Dynamic BioUp is used when Melanopic Lighting is desired to adjust during the day.

Evening



Daytime



Warmer CCT **Without** Cyan content ⟷ Cooler Light **With** Cyan content

2700K – 5000K

CCT Control

Dimming Control

› Control with Wavelinx, 2ch 0-10V, or DALI

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