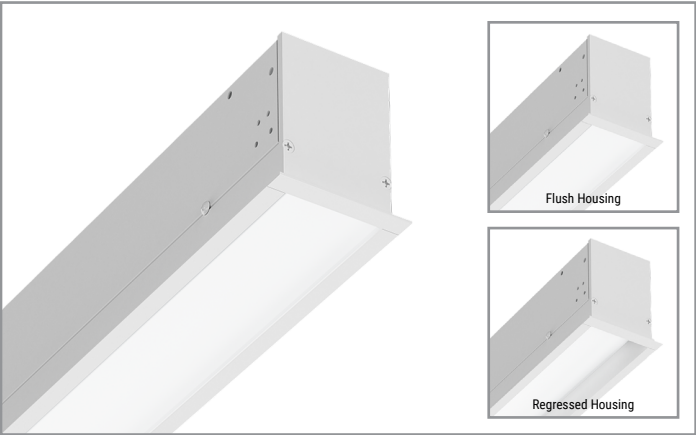


Project		Catalog #		Type	
Prepared by		Notes		Date	



NeoRay

Define 3

LED
Recessed
Direct

Typical Applications

Office • Education • Healthcare • Hospitality • Retail



Interactive Menu

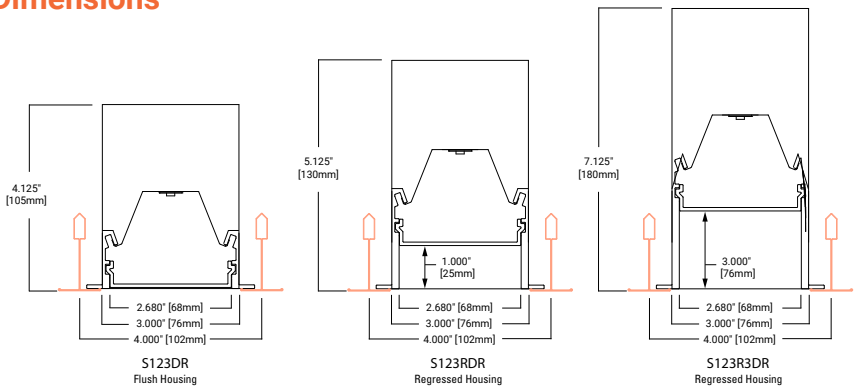
- Order Information page 2
- Shielding Options page 3
- Photometric Data page 4
- Integrated Sensor Details page 7
- VividTune page 8
- BioUp page 10



Top Product Features

- Flush, 1" regressed and 3" regressed housings available as standard.
- Specifiable to the nearest 1" in length
- Satin Lens, Asymmetric Lens and Drop Lens available
- Customizable lumen packages
- Precision extended trims fit a variety of different architectural ceiling types
- Industry leading performance and efficacy
- [Standard and custom corners / transitions available](#)
- Available in VividTune and BioUp Technology
- Options to meet Buy American Act requirements

Dimensions



additional
product diagrams

Order Information

SAMPLE ORDER NUMBER: **S123DR-S1000D840-ETG4F0-1B1-UDD-F-W-WPS**

Icon Key: Grey bar denotes available with 10-Day Quick Spec
 ∅ Consult factory for availability
 Δ Coming Soon

Domestic Preference	Light Distribution	Light Engine	Lumen Package Down	CRI	LED CCT	Ceiling Type	Length	Circuiting
[Blank]=Standard BAA=Buy American Act	S123DR=Define 3 Direct Recessed S123RDR=Define 3 Regressed Direct Recessed S123R3DR=Define 3 Regressed 3" Direct Recessed QS-S123DR=Define 3 Direct Recessed Quick Spec	-S=Standard -H=High Performance -V=VividTune -B=BioUp	340D=340 Lms/ft 560D=560 Lms/ft 775D=775 Lms/ft 1000D=1000 Lms/ft 1165D=1165 Lms/ft ____D=Custom Lms/ft	8=80 9=90 B= BioUp	27=2700K 30=3000K 35=3500K 40=4000K 50=5000K 2765=2700K-6500K 3050=3000K-5000K 2750=2700K-5000K	-ETG=15/16" T-Grid -FTG=9/16" T-Grid -STG=9/16" Slot T-Grid -FTT=9/16" Tegular T-Grid -ITG=9/16" Interlude T-Grid -ETT=15/16" Tegular T-Grid -GYP=Gypsum board -FSR=Mud-in Gypsum Board -FES="Finished" Extruded Side	2F0=2' Individual 4F0=4' Individual 8F0=8' Individual 12F0=12' Individual ____F0=4' Incremental Run (e.g. 40F0 = 40' 0") ____F_1=1' Incremental Run (e.g. 21F3 = 21' 3")	-1=Single Circuit -S=Secondary Circuit
Notes Only product configurations with this designated prefix are built to be compliant with the Buy American Act of 1933 (BAA). Please refer to Domestic Preferences website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.	Notes RDR regress of 1" will add an additional 1" to fixture depth. R3DR regress housing with add additional 3" to fixture depth 3" regressed only available in GYP, ETG and FTG ceiling types.	Notes See performance table for add'l details. Light engine must be consistent across run length.	Notes 3500K/80CRI/DR housing/F Lens. Please refer to scaling data for other variables. For custom lumen output, please refer to additional information on page 5. VividTune available with 775D, 1000D, and 1165D. Refer to BioUp Driver Tables on page 9 for light level availability.	Notes Additional lead-time and cost may apply for 927, 930, 935 and 940 configurations. 92765 and 93050 VividTune configurations require V light engine and W2A driver. B35, B40, B50, B2750 BioUp configurations require B light engine. CRI ranges from >80CRI to 96CRI in BioUp Technology and is correlated to Color Temperature.	Notes Please refer to ceiling interface diagrams for additional detail and dimensions. 3" regressed only available in GYP, ETG and FTG ceiling types.	Notes Refer to BioUp Driver Tables on page 9 for minimum allowable lengths.	Notes Secondary circuit similar to A/B switching. Price adder applies for "S" configuration. VividTune Secondary Circuit has shared CCT wiring.	

Emergency	Voltage	Integral LED Driver	Shielding Down
E=Emergency circuit B1=7W UNV integral battery B2=14W UNV integral battery B3=6W UNV Integral T=UL924 EPC Emergency Bypass Relay	-U=UNV 120-277V -1=120V -2=277V -3=347V -4=48VDC ∅	DD=0-10 Volt Dimming, 1% L= DALI Dimming, 1%-100% LH=Lutron LDE1 w/ecosys LV1=DLVP ∅ W2A=2-Channel 0-10V (VividTune and Dynamic BioUp Only) W2D=2-Channel DALI (Dynamic BioUp Only)	-F=Satin Flush Diffuser -A=Asym Flush Optic -D=Satin Drop Diffuser -G=Graze Optic
Notes Internal battery option for fixtures ≥ 4ft. Fixture Non-IC-Rated for internal battery and lumen output ≥1000 Lms/ft. External battery option with fixtures <4ft. B2 not available with Chicago Plenum, CP. Consult factory for Chicago Plenum with battery in lengths < 4ft. B1 and B2 battery options not available with W2D driver in BioUp Technology	Notes 48V for use with LV1 driver. 347V only available with DD driver.	Notes Use standard 0-10V (DD) for Static BioUp (B35 B40 B50). 2-Channel 0-10V (W2A) available with VividTune (V) and Dynamic BioUp (B2750) only. 2-Channel DALI (W2D) available with Dynamic BioUp (B2750) only	Notes All lensing options are snap-in lenses. A option not available with VividTune.

Options	Color	Integrated Sensor
-CP=Chicago Plenum -R=GLR Fuse (Fast) -F=GMF Fuse (Slow)	-W=Matte White -S=Silver -B=Black -C=Custom Color ∅	[Blank]=None WaveLinX Wireless -WLS (formerly WAB) = WaveLinX LITE Wireless Sensor, Occupancy w/ photocell, Independent & Networked -WPS (formerly WAA) = WaveLinX PRO Wireless Sensor Occupancy w/ photocell, Networked -WLN = WaveLinX LITE Wireless Control Node, without Sensor -WPN = WaveLinX PRO Wireless Control Node, without Sensor Other -LWIPD1 = Enlited Integrated Sensor -LWTPD1 = Enlited Tilemount Sensor
Notes Consult factory for CP option on fixtures <4ft and battery.	Notes	Notes All sensor options are available with (DD) driver options only. WPS and WLS sensor options are also available with W2A BioUp Dynamic Option. Refer to Sensor Placement section for additional details. Integrated Sensors are available with Single Circuit (1) option only. Integrated Sensors combined with Emergency Circuit (E) require one UL924 Bypass Relay (T) per emergency fixture. Integrated Sensor options with Regressed or Drop lenses available as ET0. Tilemount Sensor is recommended.

Product Specifications

Construction

- Available in Flush and Regressed Housing
- Precision cut housing trim extruded from 6063 aluminum with aluminum frame
- Extruded end-caps ensure a precise and uniform ceiling interface
- Nominal 2' -12' illuminated sections used in run configuration and/or individual fixtures

Finish

- Electrostatically applied polyester powder coat paint

LED Module

- Modular LED tray assembly comprising reflector, light engine, led driver and quick disconnect wire-harness for ease of installation and maintenance over the life of the luminaire

Light Engine

- Offered with three next generation Neo-Ray light engines delivering industry leading efficacy and long-life
- LED's are available in 2700K, 3000K, 3500K, 4000K or VividTune ranges of 2700K-6500K and 3000K-5000K
- CRI options of either ≥80CRI or ≥90CRI (Lumen output will be affected - please refer to the lumen adjustment factor table)

LED Drivers

- LED system coupled with electrical driver
- Traditional electronic drivers are available for 120-277V and 347V applications
- Cooper Lighting Solutions's DLVP Low voltage drivers are available for 48VDC applications

Controls and Integrated Sensors

- Equipped standard with a 0-10V continuous dimming driver. Compatible with most standard dimming devices
- Additional control types are available (DALI, Lutron, DLVP) at an additional cost
- WaveLinx and Enlighted wireless sensors as well as stand-alone sensors available

Mounting

- Recessed

Lengths

- Available in any length (23" min) with a resolution of 1 inch. Max section length of 12ft (8ft max option available)
- Additional fixture lengths are available please consult factory. All lengths are nominal
- VividTune available as standard product in 1ft resolution
- See page 9 for BioUp length/light level availability
- Actual sizes are one inch shorter than nominal to allow easy in-grid installation
- For Gypsum or Flangeless installations add 1 inch to overall fixture length (e.g. 4F1 for 48" length)
- Refer to ceiling type section of specification sheet and submittal drawings for actual sizes

Corners and Transition Pieces

- Corners and other transition pieces are fully luminous
- Constructed using precision mitered frame and lens components
- The frame is welded to ensure a precise and robust assembly
- Standard 90° horizontal and vertical corners as well as custom corners are available
- [Consult corner and pattern addendum for additional information](#)
- Alternative transition pieces such as T's, Y's, X's, etc. are also available ☺

Snap-In Lensing Options

- Satin Flush - Flush, high diffusion glare-free lens
- Satin Drop - 1" Drop, high diffusion glare-free lens
- Asymmetric - Flush, low-glare Asymmetric lens
- Flush options ship with our patent-pending underlens solution, the proud lens ships with an injection molded end cap to eliminate light leak

Reflectors

- Precision formed cold-rolled steel reflectors with high reflectivity
- Ultra high reflectivity used with High Performance light engine

Lumen Maintenance

- 90% (L90) of initial light output at 100,000+ hrs
- 70% (L70) of initial light output at 400,000+ hrs
- Derived from TM-21 standard @25°C ambient and typical operating conditions

Custom Lumen Output

- Custom lumen output expressed option in Lumens per foot (e.g. -725D for 725 Lms/ft down). Refer to additional detail on page 5.

Electrical

- Dimming provided as standard
- Dimming wires capped with wire-nuts for non-dimming applications
- Optional battery backup options provided
- Default battery location is internal to fixture
- Default emergency section is 4ft in length and located at the beginning of the fixture unless designated elsewhere
- Estimated lumen output = battery wattage * min efficacy (see performance table)
- The EPC option will bypass local controls and dimming upon loss of normal power. This option is required when the fixture has both integrated sensors and emergency circuiting

Integrated Sensors

- Please reference page 7 for details

Weight

- 2.65 lbs per foot

Approvals

- cULus - listed for damp locations
- RoHS compliant
- Meets NYC requirements
- Meets CCEC requirements
- IC Rated for insulation contact (except where noted)
- Tested to IESNA LM-79 and LM-80
- Can be used for State of California Title 24 high efficacy luminaire
- DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details

Warranty

- Five year warranty standard.

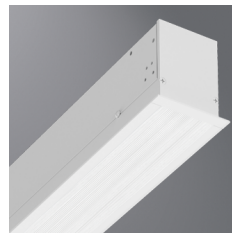
Shielding Options



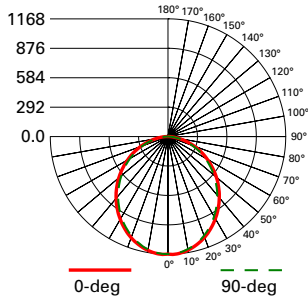
S123DR with Flush
Satin Lens (F)



S123DR with Drop
Satin Lens (D)

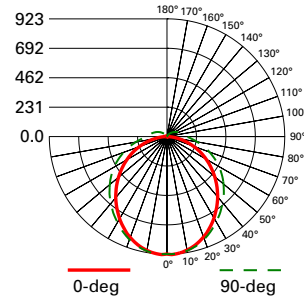


S123DR with Flush
Asymmetric Lens (A)



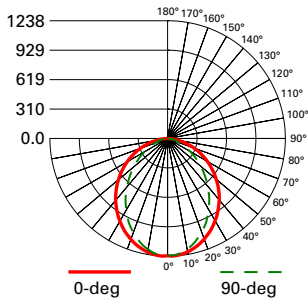
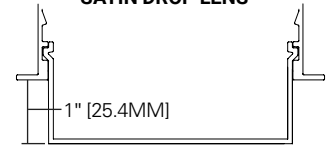
FILE NAME:
S123DR-S775D835-GYP4F0-1-UDD-F-W
LUMENS: 3027 Lms
LPW: 114.7 LPW
CCT: 3500K
WATTS: 26.4 W
TEST NUMBER: G3-1802-639-11

SATIN FLUSH LENS



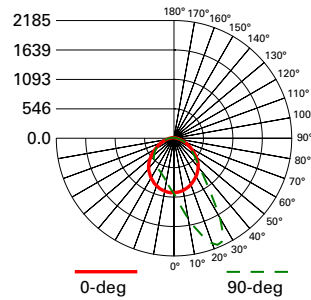
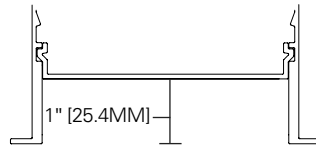
FILE NAME:
S123DR-S775D835-GYP4F0-1-UDD-D-W
LUMENS: 3085 Lms
LPW: 116.9 LPW
CCT: 3500K
WATTS: 26.4 W
TEST NUMBER: G3-1802-639-15

SATIN DROP LENS



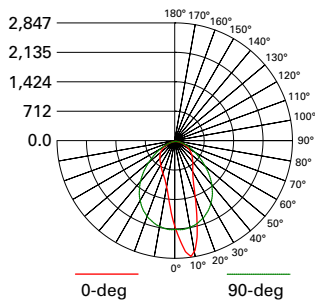
FILE NAME:
S123RDR-S775D835-GYP4F0-1-UDD-F-W
LUMENS: 2786 Lms
LPW: 105.5 LPW
CCT: 3500K
WATTS: 26.4 W
TEST NUMBER: G3-1802-639-25

SATIN REGRESSED DIFFUSER



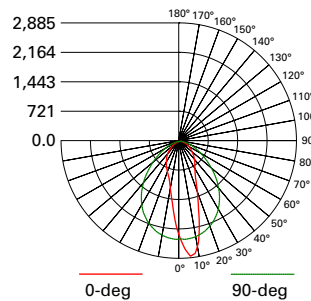
FILE NAME:
S123DR-S775D835-GYP4F0-1-UDD-A-W
LUMENS: 3115 Lms
LPW: 118.0 LPW
CCT: 3500K
WATTS: 26.4 W
TEST NUMBER: G3-1802-639-20

ASYMMETRIC FLUSH LENS



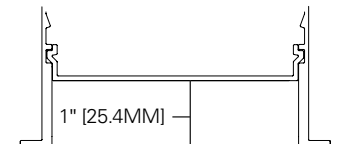
FILE NAME:
S123DR-S775D835-X4F0-XX-UDD-G-W
LUMENS: 3462.5 Lms
LPW: 134.7 LPW
CCT: 3500K
WATTS: 25.7 W
TEST NUMBER: P646650

GRAZE OPTIC FLUSH



GRAZE OPTIC REGRESSED

FILE NAME:
S123RDR-S775D835-X4F0-XX-UDD-G-W
LUMENS: 3231.3 Lms
LPW: 124.3 LPW
CCT: 3500K
WATTS: 26 W
TEST NUMBER: P646695



Photometric Overview and Performance Data

Performance Per Linear Foot at 3500K/80CRI

Nominal Output	Standard and VividTune Light Engine		High Performance Light Engine	
lms/ft	W/ft	lm/W	W/ft	lm/W
340	3.0	114	2.9	119
560	4.8	116	4.4	126
775	6.8	114	6.1	126
1000	8.9	111	8.1	123
1165	10.6	109	9.7	120

Lumen Adjustment Factors

CCT	80CRI	90CRI
2700K	N/A	0.801
3000K	0.943	0.815
3500K	1.000	0.861
4000K	1.010	0.892

Lumen Adjustment Factors

Direct Optic	Adjustment Factor
Flush Frosted Lens (F)	1.000
Asymmetric (A)	1.029
Drop (D)	1.019
Regress Frosted (RD w/ F)	0.920
Wall Graze (G)	1.119

LUMEN ADJUSTMENT CALCULATIONS

Example 1 - Adjusted Lumen Output

Nominal Lumen Output selected = 1025 lms/ft (based on standard of 3500K/80CRI)
Lumen Adjustment Factor = 0.801 (2700K/90CRI desired)

Adjusted Lumen Output = Nominal Lumen Output x Lumen Adjustment Factor
Adjusted Lumen Output = 1025 lms/ft x 0.801 = 821 lms/ft

Example 2 - Custom Lumen Output based on Required Lumens Per Foot

Total light output (4ft) requirement of 2800 lms, desired CCT and CRI of 4000K/80CRI

Total required lumens per foot @ 4000K = 2800 lms / 4 ft = 700 lms/ft
Lumen Adjustment Factor = 1.018 (Requirement based on 4000K / 80CRI)

Total required lumens per foot @ 3500K / 80CRI = 700 lms/ft ÷ 1.018 = 688 lms/ft

Estimated efficacy = 121 lm/W (find nearest value using table above)

Estimated power consumption = 688 lms/ft ÷ 121 lm/W = 5.69 W/ft

Custom Lumen Output

Total Light Output Range (lms/ft)

CCT	80CRI	90CRI
2700K	N/A	183-1025
3000K	215-1207	186-1043
3500K	228-1280	197-1102
4000K	231-1293	204-1142

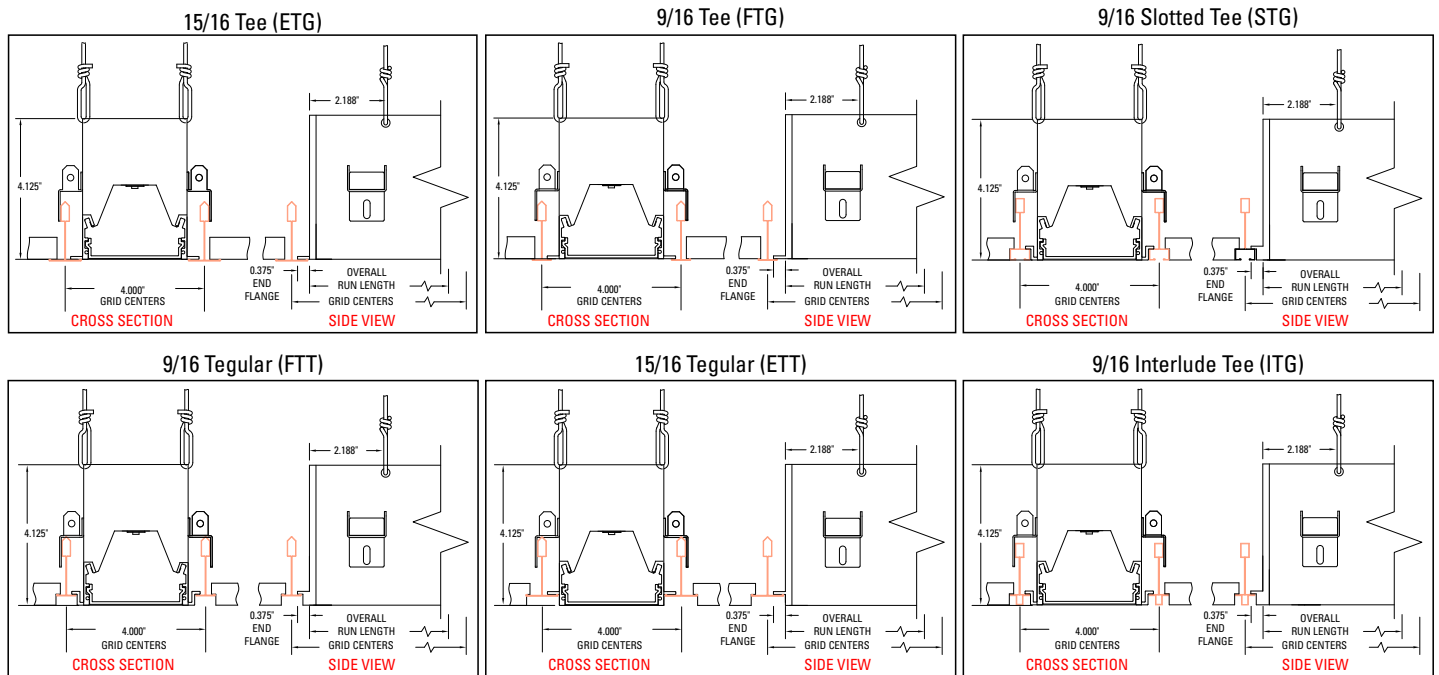
If your requirement is expressed in power consumption (W/ft) rather than light output, you can use the power to lumen output curves to convert power consumption to light output for specification.

Efficacy for custom lumen outputs can be estimated using lumen output curves or with the use of our online custom lumen output tool.

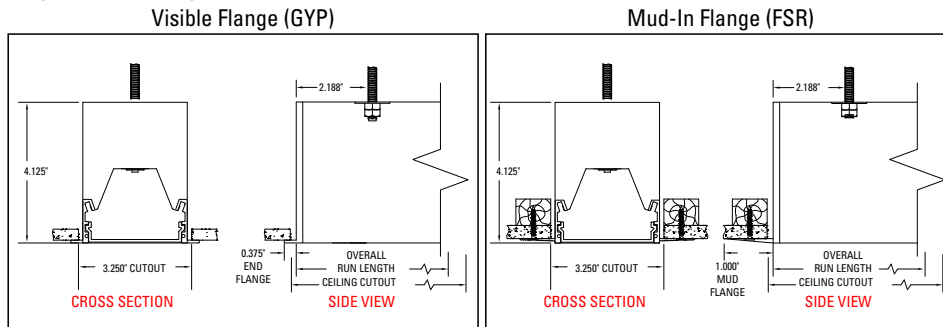
Ceiling Type

Extruded Trim Flange Details - Refer to submittal drawings for detailed flange information - for additional options consult factory.

Grid Ceiling Systems



Drywall Ceiling



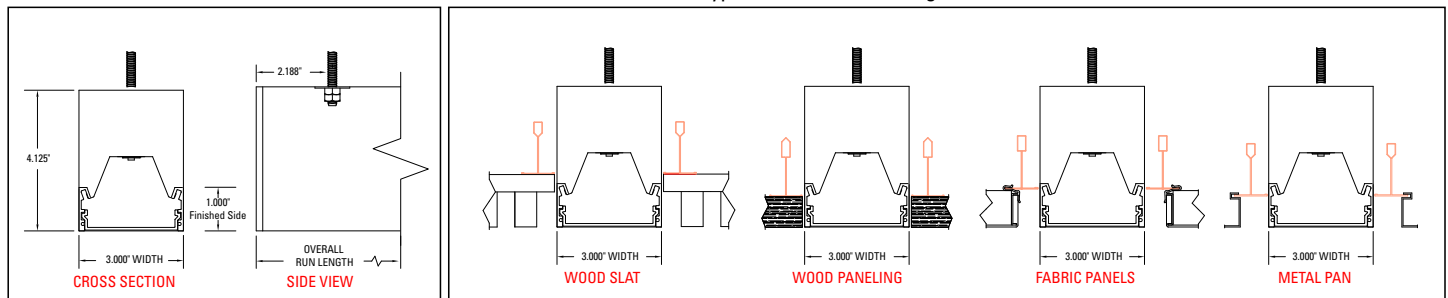
NOTE: ACTUAL LENGTH OF GYP/FSR FIXTURES WILL BE 1" SHORTER IN LENGTH THAN TOTAL REQUESTED RUN LENGTH FOR ALL RECESSED / PERIMETER FIXTURES

OVERALL RUN LENGTH = 'FIXTURE ORDER LENGTH' - 1"
E.G. - OVERALL RUN LENGTH OF 3' 11" WILL SHIP WHEN ORDERING A '4FO' FIXTURE

CEILING CUTOUT = 'OVERALL RUN LENGTH' + 0.250"
OR CEILING CUTOUT = 'FIXTURE ORDER LENGTH' - 0.750"
E.G. - CEILING CUTOUT WHEN ORDERING A '4FO' LENGTH FIXTURE WILL BE 3' 11.250"

Other Ceiling Systems (Wood, Fabric, Metal Pan, Tech Style, HD Box Style)

Finished Extruded Side (FES)



Integrated Sensor Details and Placement

Sensor Type	Wireless	Sensor Integration	Sensor Mounting	Ordering Code
WaveLinX Pro	Yes	Integral to Fixture	Mounted in solid cover	WAA
		Pre-wired for tile-mount	Installation in ceiling tile or J-Box cover	WTA
WaveLinX Lite	Yes	Integral to Fixture	Mounted in solid cover	WAB
		Pre-wired for tile-mount	Installation in ceiling tile or J-Box cover	WTB
Enlighted	Yes	Integral to Fixture	Mounted in illuminated lens	LWIPD1
		Pre-wired for tile-mount	Installation in ceiling tile or J-Box cover	LWTPD1
Stand-Alone SVPD1	No	Integral to Fixture	Mounted in solid cover	SVPD1
		Pre-wired for tile-mount	Installation in ceiling tile or J-Box cover	SVTPD1

Optional standalone and wireless connected integrated sensors require use of the DD (0-10V) driver. WaveLinX Pro and Enlighted sensors require additional system hardware (not provided) for full functionality. Tilemount sensor recommended for optimal sensor coverage on perimeter applications. Tilemount sensor not available with Chicago plenum option.

Standard sensor layout is shown below. Please refer to sensor coverage pattern diagrams to ensure proper coverage for the application. Standard configurations are available in both individual fixtures and in continuous runs. For optimal coverage, continuous runs will default to 8ft max section length.

For additional information integrated sensors and connected lighting, please visit [Cooper Lighting Solutions's Connected Lighting Website](#).

- ☐ Standard Sensor with Luminaire Control
- ☒ Auxiliary Sensor used for Sensor Coverage (wireless systems only)

INTEGRAL SENSOR

≤8ft Individual

☐

>8ft Individual

☐☒

Beginning of Run (BOR)

☐

Intermediate Section (INT)

☐

End of Run (EOR) ≤ 4ft

☐

End of Run (EOR) > 4ft

☐☒

TILEMOUNT SENSOR (OPTIMAL LOCATION)

Individual

☐

Beginning of Run (BOR)

☐

Intermediate Section (INT)

☐

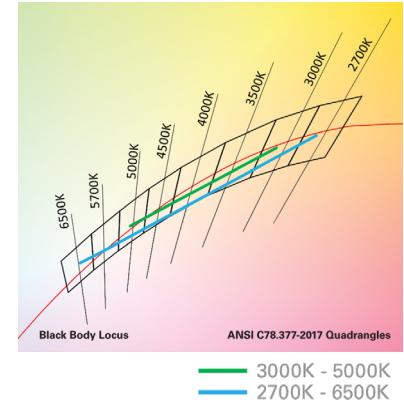
End of Run

☐



Define 3 LED Recessed with VividTune Tunable White

VividTune tunable white luminaires 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.



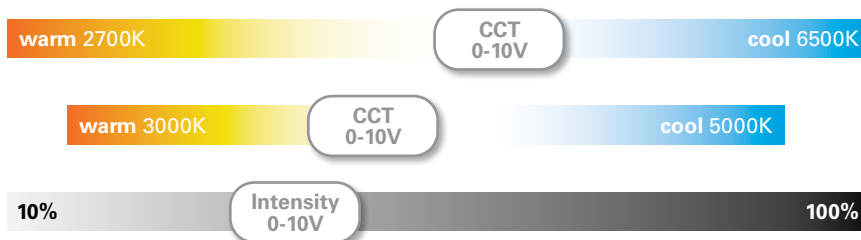
Performance Data*

Tunable White - Lumen Adjustment Factors				
CCT	3000K-5000K		2700K-6500K	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	-	-	0.868	0.741
3000K	0.894	0.736	0.893	0.771
3500K	0.946	0.804	0.924	0.809
4000K	0.993	0.868	0.944	0.835
4500K	1.002	0.883	0.961	0.857
5000K	1.002	0.883	0.974	0.874
6500K	-	-	0.988	0.897

Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	S123DR-C1000D835-X-UDD-F-W	S123DR-V1000D83050-X-UW2A-F-W	S123DR-V1000D93050-X-UW2A-F-W
3000K	-	3576	2944
3500K	4000	3784	3216
4000K	-	3972	3472
4500K	-	4008	3532
5000K	-	4008	3532

Controlling VividTune Tunable White

VividTune luminaires make tunable white more accessible by using simple and familiar controls. From wall dimmers to wireless controls, VividTune tunable white luminaires are compatible with industry standard 0-10V dimming controls. A single 0-10V dimming input is used to control intensity (brightness) while a second 0-10V dimming input is used to adjust CCT. For suggested control configurations, go to www.cooperlightingsolutions.com for tunable white application guides.



Example of Lumen Adjustment Calculation

S123DR-V1000D83050-X-UW2A-F-W
at 80 CRI tuned to 3500K

Adjusted Lumen =
published lm x adjusted lm factor

Adjusted Lumen = 4000 x 0.946

Adjusted Lumen = 3784 lm

* Lumen adjustment factors are for reference
and may be different for each product selected.
Refer to IES files for actual performance data on each.

BioUp Photometry

Legend: • Available
- Unavailable

3in	DIRECT	
Nominal Output	BioUp Light Engine	B35 efficacy
lm/ft	W/ft	lm/W
340	-	-
560	6.0	93.3
775	8.6	90.1
1000	11.5	87.0
1165	-	-

0-10V						
Availability						
Lumens/ft	340	560	775	1000	1165	
Fixture Length	4	-	•	•	•	-
	5	-	•	•	-	-
	6	-	•	•	•	-
	7	-	•	•	-	-
	8	-	•	•	•	-
	9	-	•	•	-	-
	10	-	•	•	•	-
	11	-	•	•	-	-
	12	-	•	•	•	-

DALI						
Availability						
Lumens/ft	340	560	775	1000	1165	
Fixture Length	4	-	•	•	•	-
	5	-	•	•	-	-
	6	-	•	•	•	-
	7	-	•	•	-	-
	8	-	•	•	•	-
	9	-	•	•	-	-
	10	-	•	•	•	-
	11	-	•	•	-	-
	12	-	•	•	•	-

Proven Research. Industry Recognized.

BioUp

Melanopic Lighting



See better



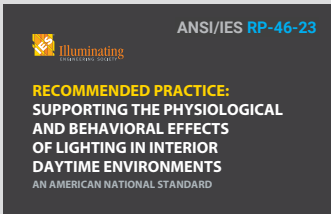
Feel better



Function better



See [BioUp brochure](#) for more details



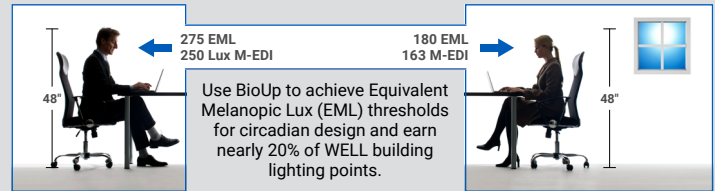
ANSI/IES RP-46-23

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

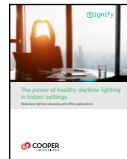
"...circadian clock synchronization is paramount to the body's efficient and appropriate functioning." – TM18



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



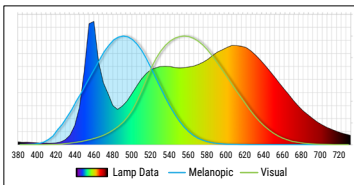
MDER, M-EDI and **EML** are key metrics used to quantify non-visual performance of indoor lighting systems.



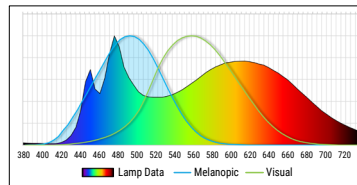
See [BioUp white paper](#) for more details

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



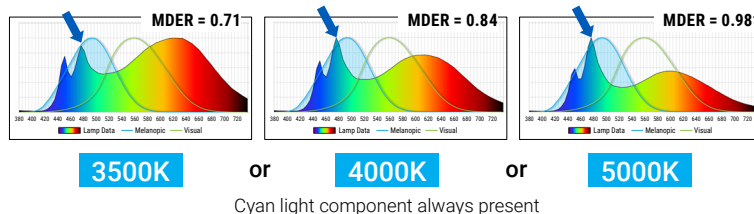
30% boost Biological impact compared to traditional LED sources

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.



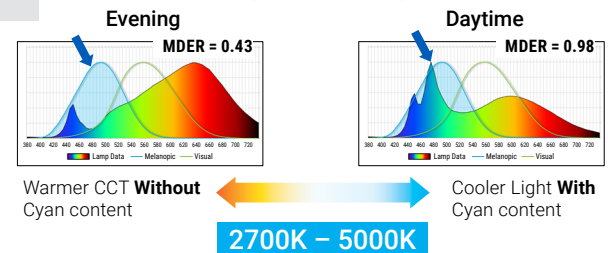
Dimming Control 0% Intensity 100%

no CCT control needed

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

Dynamic - (Tunable)

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



Warmer CCT Without Cyan content

Cooler Light With Cyan content

2700K – 5000K

CCT Control warm 2700K Intensity 100% cool 5000K

Dimming Control 0% Intensity 100%

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