

Project		Catalog #		Type	
Prepared by		Notes		Date	



# Metalux

## 24GR LED

2' x 4' LED Troffer  
General Recessed LED Troffer  
For Use in Insulated Ceilings

### Typical Applications

• Office • Schools • Residential • Hospitals • Retail Merchandising Areas

### Interactive Menu

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### Top Product Features

- Available in 2' x 4', 2' x 2' and 1' x 4'
- Multiple lumen packages up to 18,000 in 2x4 and 9,000 in 2x2
- Up to 140 lm/W for maximum energy savings versus fluorescent troffers
- Correlated Color Temperatures 3000K, 3500K, 4000K and 5000K at 80 and 90 CRI
- Standard 0-10V continuous dimming driver
- Options to meet Buy American and other domestic preference requirements

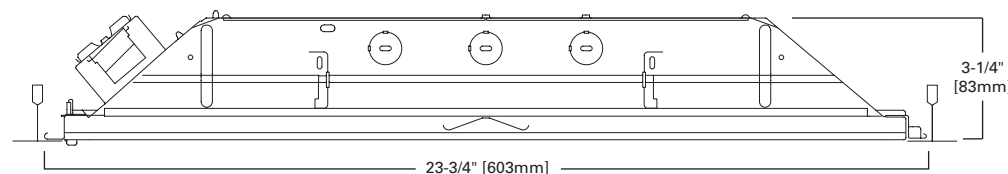
### Product Certification



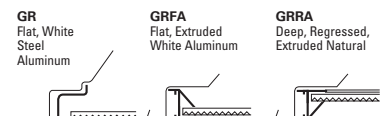
### Product Features



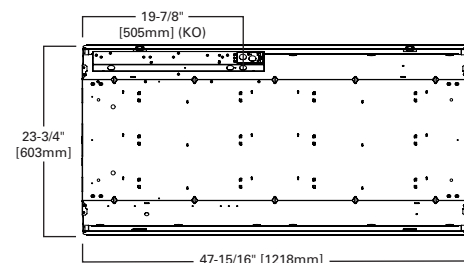
### Dimensional and Mounting Details



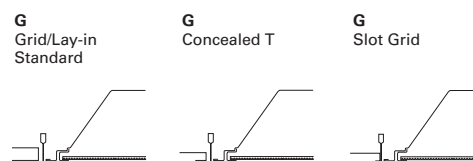
### Door Frames



### Mounting Data



### Ceiling Compatibility



Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G

(Verify compatibility/ consult factory.)

## Order Information SAMPLE ORDER NUMBER: 24GR-LD5-48-F1-UNV-L835-CD1-U

Domestic Preferences <sup>(1)</sup>	Rating	Width/Length	Trim Type	Series <sup>(3)</sup>	Door Frame	LED Type	LED Lumen Output <sup>(4)</sup>	Shielding
<b>[Blank]</b> =Standard <b>BAA</b> =Buy American Act <b>TAA</b> =Trade Agreements Act	<b>[Blank]</b> =Standard <b>ATW-SW4</b> = Chicago Rated	<b>24</b> =2' x 4'	<b>G</b> =Grid/Lay-in (Standard) <sup>(2)</sup> <b>G</b> =Concealed T <b>G</b> =Slot Grid	<b>R</b> =General Purpose Troffer	<b>Standard</b> =Flat White Steel Door (Leave Blank) <sup>(31)</sup> <b>FA</b> =Flush White Extruded Aluminum c/w Spring Latch <b>RA</b> =Regressed White Extruded Aluminum <b>FAN</b> =Flush Natural Anodized Extruded Aluminum <b>RAN</b> =Regressed Natural Anodized Extruded Aluminum <b>FAB</b> =Flush Black Extruded Aluminum <b>RAB</b> =Regressed Black Extruded Aluminum	<b>LD5</b> =LED 5.0	<b>30</b> =3000 <b>34</b> =3400 <b>38</b> =3800 <b>42</b> =4200 <b>48</b> =4800 <b>56</b> =5600 <b>64</b> =6400 <b>72</b> =7200 <sup>(7)</sup> <b>85</b> =8500 <sup>(6), (7)</sup> <b>90</b> =9000 <sup>(5), (7)</sup> <b>100</b> =10000 <sup>(5), (7)</sup> <b>120</b> =12000 <sup>(5), (7)</sup> <b>130</b> =13000 <sup>(5), (7)</sup> <b>150</b> =15000 <sup>(5), (7), (23)</sup> <b>180</b> =18000 <sup>(5), (7), (23)</sup>	<b>F1</b> =Pattern 12, Frosted Acrylic, 0.095" thick <b>F125</b> =Pattern 12, Frosted Acrylic, 0.125" thick <b>A</b> =Pattern 12, Clear Acrylic, 0.095" thick <b>A125</b> =Pattern 12, Clear Acrylic, 0.125" thick <b>A19/156</b> =Pattern 19, Clear Acrylic, 0.156" thick <sup>(29)</sup> <b>FGW080</b> =Frosted Smooth Acrylic, 0.080" thick <b>A/WG</b> =0.095" Pattern 12 Clear Acrylic Lens, with Wireguard directly below lens
<b>Notes</b>  (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 <a href="#">DOMESTIC PREFERENCES</a> website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.			<b>Notes</b>  (2) An EQ Grid Clip is recommended for all 9/16" ceiling systems.	<b>Notes</b>  (3) DesignLights Consortium® Qualified and classified for DLC Standard, refer to <a href="#">www.designlights.org</a> for details.	<b>Notes</b>  (31) Only Standard door frames can support wireguard accessory.		<b>Notes</b>  (4) Nominal lumen output. See table for actual values. (5) White tuning not available with this model. (6) The maximum lumens on this version with VividTune option will be 8300, see IES files for actual performance values. (7) Not compatible with WN driver. (23) XMR required for 15000 lumens and up.	<b>Notes</b>  (29) A19/156 lens creates holographic effect on the surface of the lens.

Voltage <sup>(9)</sup>	Options	Emergency	CCT	Factory Wiring	Driver Type
<b>347V</b> =347 Volt <sup>(11)</sup> <b>UNV</b> =Universal Voltage 120-277 <sup>(10)</sup> <b>48V</b> =48 Volt Low- voltage (Class 2) <sup>(c)</sup> <b>120V</b> =120 Volt <sup>(12)</sup> <b>277V</b> =277 Volt <sup>(12)</sup>	<b>GL</b> =Single Element Fuse <b>GM</b> =Double Element Fuse	<b>EL7W</b> =7-watt 120V-277V emergency battery pack <sup>(13)</sup> <b>EL10W</b> =10-watt 120V-277V emergency battery pack <sup>(13)</sup> <b>EL14W</b> =14-watt 120V-277V emergency battery pack <sup>(13)</sup> <b>EL10WSD</b> =10W emergency battery pack with self-diagnostic installed <sup>(13), (30)</sup> <b>EL14WSD</b> =14W emergency battery pack with self-diagnostic installed <sup>(13), (30)</sup> <b>ELV7W</b> =Low-voltage system, 7-watt emergency battery pack <sup>(c)</sup> <b>ELV14W</b> =Low-voltage system, 14-watt emergency battery pack <sup>(c)</sup> <b>GTR2</b> =Bodine Generator Transfer Relay <sup>(14), (15)</sup> <b>ETRD</b> =Emergency Transfer Relay with dimming control <sup>(14)</sup>	<b>L830</b> =3000K <b>L835</b> =3500K <b>L840</b> =4000K <b>L850</b> =5000K <b>L930</b> =90CRI, 3000K <b>L935</b> =90CRI, 3500K <b>L940</b> =90CRI, 4000K <b>L950</b> =90CRI, 5000K <b>L83050</b> =80CRI 3000K-5000K White Tuning <sup>(16)</sup> <b>L93050</b> =90CRI 3000K-5000K White Tuning <sup>(16)</sup> <b>L82765</b> =80CRI 2700K-6500K White Tuning <sup>(16)</sup> <b>L92765</b> =90CRI 2700K-6500K White Tuning <sup>(16)</sup>	<b>A3/8-4/18GDM</b> =3/8" Flex with 0-10V Dimming Leads Multiple other configurations available. See below for details. <b>A3/8-5/18GDM</b> =Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.  <b>Flexible Metal Conduit Options</b>  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. <b>A3/8-4/18GDM series notes:</b> 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, 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).	<b>CD</b> =0-10V Driver (10%-100% Dimming) <sup>(19)</sup> <b>HCD</b> = 0-10V Driver (1%-100% Dimming) <sup>(19)</sup> <b>5LTD</b> =DALI Driver (5%-100% Dimming) <sup>(18)</sup> <b>SLTHD</b> =DALI Driver (1%-100% Dimming) <b>LV</b> =Low-voltage System Driver (0%-100% Dimming) <sup>(c)</sup> <b>SD</b> =Step Dimming Driver (50% or 100% Dimming) <sup>(17)</sup>  <b>LH</b> =Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming <sup>(7)</sup> <b>W2A</b> =White Tuning, 2 ch, Intensity and CCT Control <sup>(20)</sup> <b>SR</b> =Sensor-ready Driver (1%-100% Dimming)
<b>Notes</b>  (9) Products also available in non-US voltages and frequencies for international markets. (10) Not available when specifying emergencies, voltage must be specific. (11) 347V is not available with the W2A driver. (12) Must specify voltage as 120V or 277V when ordering GTR2 option. (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility.		<b>Notes</b>  (13) Factory installed 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. Battery option increases total height by 1 inch. (14) 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. (15) Must specify voltage as 120V or 277V when ordering GTR2 option. (30) EL10WSD and EL14WSD not available with 347V.  (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility.	<b>Notes</b>  (16) 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.		<b>Notes</b>  (17) Step dimming (bi-level) 1 driver, 4200 - 10000, 2 driver, 12000 and up lumen model. (18) DALI available from 4200 - 9000 lumen models. Two drivers required for 10000 lumen models and up. (19) Requires two drivers for 10000 lumens and above. (20) 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.  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: (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility. (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 <a href="#">www.lutron.com</a>

No. of Drivers	Options	Integrated Sensing Systems	Packaging	Accessories <sup>(28)</sup>
<b>1=1 Driver</b> <b>2=2 Drivers</b>	<b>PAF</b> =Painted After Fabrication <b>G1</b> =Gasket, Door Frame and Housing <b>G2</b> =G1 plus Gasket between Lens and Door <b>G3</b> =G1 and G2 plus Gasketing on Mounting Surface of Fixture Trims <sup>(21), (22)</sup>	<b>[Blank]</b> =No Sensor <b>WAA</b> =WaveLinX PRO Wireless Integrated Sensor <sup>(24), (24), (A)</sup> <b>WPN</b> =WaveLinX PRO Wireless Node without Sensor <sup>(24), (A)</sup> <b>WAB</b> =WaveLinX LITE Wireless Integrated Sensor <sup>(25), (B)</sup> <b>WLA</b> =Low-voltage Integrated Sensor <sup>(26), (C)</sup>	<b>U</b> =Unit Pack <b>PAL</b> =Job Pack, out of carton <b>PALC</b> =Job Pack, in carton	<b>EQ-CLIP-U</b> =T-BAR Safety Earthquake Clips <sup>(27)</sup> <b>DF-24W-U</b> =2' x 4' Drywall Frame Kit <b>SK-24-WS</b> =2' x 4' Shallow Surface Mount Kit <b>SK-24-WT</b> =2' x 4' Tall Surface Mount Kit
	<b>Notes</b>  (21) Gasketing only available with aluminum door frame. (22) Gasketing minimum .125	<b>Notes</b>  (24) WAA sensor and WPN node to be used with CD, HCD or W2A driver. Consult factory for WPN with tunable white W2A driver. (25) WAB sensor to be used with CD driver. (26) WLA sensor to be used with LV 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) WaveLinX LITE devices are not currently compatible with the WaveLinX Wireless Area Controller. Consult WaveLinX LITE system pages for additional details and compatibility. (C) Consult WaveLinX Low-Voltage or DLVP system pages for additional details and compatibility.		<b>Notes</b>  (27) An EQ Grid Clip is recommended for all 9/16" ceiling systems. (28) Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.

## Product Specifications

### Construction

- Rigid housing is die formed of code gauge prime cold rolled steel
- Full length die-formed stiffeners and unibody endplate for added strength
- Innovative design provides superior lens brightness, uniformity and visual comfort
- Unibody endplates are securely attached with interlocking tabs and screws
- Four auxiliary fixture end suspension points provided
- Endplates have integral Grid-lock feature for safety and convenience

### Controls

- Standard with 0-10V dimming driver (10% standard, 1% optional)
- WaveLinX wireless sensor compatible for standalone, controlled, connected, and IoT capability
- Low-voltage sensor and driver compatible for WaveLinX Low-Voltage and DLVP applications
- DALI 2.0, Lutron, and step-dimming available

### Electrical

- TM-21 life at 60,000 hours up to L88 and calculated L70 exceeds 162,000 hrs.
- Available in 3000K, 3500K, 4000K or 5000K with a minimum of 80 CRI
- Color accuracy  $\leq 3$ -Step MacAdam ellipse (SDCM)
- Drivers available in 120-277V and 347V
- Tunable white options available with Cooper Lighting Solutions' VividTune

### Emergency Battery Pack Option

- 120V-277V integral emergency battery pack comes in 7-watts, 10-watt, or 14-watts
- Self-diagnostic emergency battery available in 10 or 14-watts (NFPA 101® Life Safety Code®)
- Constant power to the LED system for controlled, predictable discharge
- Integrated test switch/indicator light visible from floor
- Min. 90-minute backup period for code compliance
- Integral emergency transfer relay available for generator equipped power systems

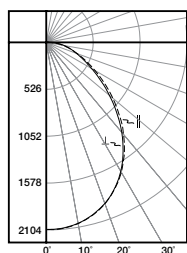
### Frame/Optical Shielding

- Die formed, flat steel door with frosted #12 pattern acrylic prismatic lens
- Primary stocking skus come standard with robust .095 lens
- Other options available for maximum versatility
- Replacement lenses available, contact factory

### Compliance

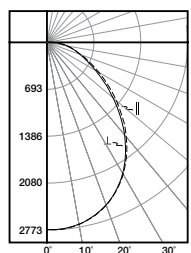
- IC rated for insulation contact
- cULus listed for damp locations
- RoHS compliant
- Tested to IESNA LM-79 and LM-80
- Stated life per TM21 standards
- Can be used for State of California Title 24 high efficacy luminaire

## Photometric Data

[View IES files](#)


### 24GR-LD5-48-F1UNV-L835-CD1-U

Electronic Driver  
Linear LED 3500K  
Spacing criterion: (II) 1.19 x mounting height, (L) 1.18 x mounting height  
Lumens: 4821  
Input Watts: 37W  
Efficacy: 128.6 lm/W  
Test Report: 24GR-LD5-48-F1-UNV-L835-CD1-U.IES



### 24GR-LD5-64-F1UNV-L835-CD1-U

Electronic Driver  
Linear LED 3500K  
Spacing criterion: (II) 1.19 x mounting height, (L) 1.18 x mounting height  
Lumens: 6462  
Input Watts: 48W  
Efficacy: 134.2 lm/W  
Test Report: 24GR-LD5-64-F1-UNV-L835-CD1-U.IES

## Energy and Performance Data

Stock or MTO*	Catalog Logic	Delivered Lumens	Watts	Efficacy (lm/W)
MTO	24GR-LD5-30-F1-UNV-L835-CD1-U	3074	23.4	131
MTO	24GR-LD5-34-F1-UNV-L835-CD1-U	3459	26.7	129
Stock	24GR-LD5-38-F1-UNV-L835-CD1-U	3880	30.6	127
MTO	24GR-LD5-42-F1-UNV-L835-CD1-U	4294	34.6	124
Stock	24GR-LD5-48-F1-UNV-L835-CD1-U	4821	37.4	129
MTO	24GR-LD5-56-F1-UNV-L835-CD1-U	5618	45.1	124
Stock	24GR-LD5-64-F1-UNV-L835-CD1-U	6462	48.1	134
MTO	24GR-LD5-72-F1-UNV-L835-CD1-U	7257	56.0	129
MTO	24GR-LD5-85-F1-UNV-L835-CD1-U	8567	70.3	122
MTO	24GR-LD5-90-F1-UNV-L835-CD1-U	9092	69.1	132
MTO	24GR-LD5-100-F1-UNV-L835-CD2-U	10030	71.7	140
MTO	24GR-LD5-120-F1-UNV-L835-CD2-U	12260	90.1	136
MTO	24GR-LD5-130-F1-UNV-L835-CD2-U	13290	90.2	134
MTO	24GR-LD5-150-F1-UNV-L835-CD2-U	15340	120.3	128
MTO	24GR-LD5-180-F1-UNV-L835-CD2-U	18050	144.2	125

\*Stocked in 3500K and 4000K others are MTO.

### Lumen Maintenance

Ambient Temperature	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (Hours)
25°C	> 88%	> 162,000

### Lens Table

Approximate Lumen Multiplier	
F1	1.0
F125	1.0
A125	1.01
A	1.01
A19/156	.975
FGW080	.85

### CCT Table

Approximate Color Temperature Multiplier	
5000K	1.016
4000K	1.016
3500K	1.0
3000K	.982
2700K	.930

### Shipping Data

Catalog No.	Wt.	Pallet
24GR-LD5-48	20 lbs.	28

## Control Systems

- WaveLinX PRO Wireless
- WaveLinX LITE Wireless
- WaveLinX Wired

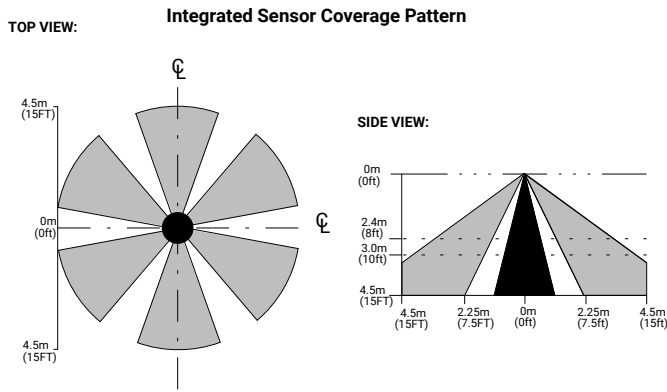
The GRLED with WaveLinX offers no-hassle lighting control with multiple luminaire level control solutions.

**WaveLinX PRO** is used for applications where spaces need to be connected to a lighting or building management system and to help building owners improve their operations, building environment, and tenants' experience by leveraging the data generated by the sensors. The WaveLinX PRO devices communicate with each other via the WaveLinX Area Controller which coordinates the data traffic between the devices, lighting apps and CORE platform. The WaveLinX Area Controller also hosts the time clock required if spaces need to be turned on/off at a specific time.

The WaveLinX PRO Sensor offers built-in occupancy and daylighting controls as well as luminaire level control including white tuning while the WaveLinX PRO Node offers luminaire level control and white tuning. If opting for the WaveLinX PRO Node option, a PRO Ceiling Sensor will most likely be needed within the space to control the lights based on occupancy and daylight levels.

**WaveLinX LITE** is used for single spaces where there is no need to manage the spaces remotely or exchange the sensor data with other sub-systems within the building or smart applications.

The WaveLinX LITE Sensor offers built-in occupancy and daylighting controls as well as luminaire level control.



**Note:** Installation of integrated sensors within 3-ft (1m) of HVAC air vents is not recommended. The pattern shown is intended solely as a general guide and is not to scale.

## 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**

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

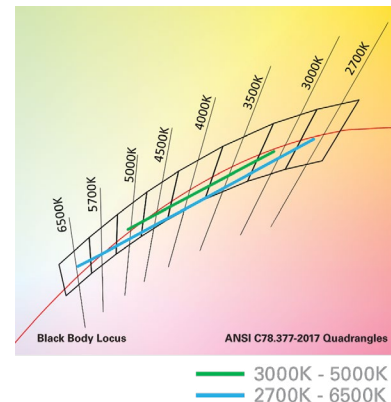
## SCALABILITY





## 24GR 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.



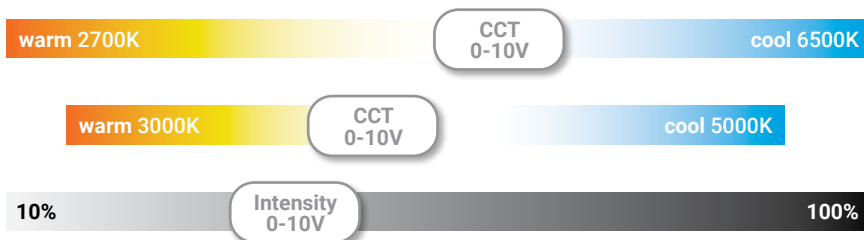
## Performance Data\*

Tunable White - Lumen Adjustment Factors (example only)				
CCT	3000K-5000K		2700K-6500K	
	80 CRI	90 CRI	80 CRI	90 CRI
2700K	-	-	0.923	0.789
3000K	0.950	0.783	0.949	0.820
3500K	1.006	0.855	0.983	0.861
4000K	1.056	0.923	1.004	0.888
4500K	1.066	0.939	1.022	0.911
5000K	1.066	0.939	1.036	0.929
6500K	-	-	1.051	0.955

2' x 4' GRLED - Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	24GR-LD5-48-F1-UNV-L835-CD1-U	24GR-LD5-48-F1-UNV-L83050-W2A1-U	24GR-LD5-48-F1-UNV-L93050-W2A1-U
3000K	-	4582	3773
3500K	4821	4849	4122
4000K	-	5091	4451
4500K	-	5140	4529
5000K	-	5140	4529

## 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.cooperlighting.com](http://www.cooperlighting.com) for tunable white application guides.



## Example of Lumen Adjustment Calculation

**24GR-LD5-48-F1-UNV-L83050-W2A1-U**  
at 80 CRI tuned to 3500K

*Adjusted Lumen = published lm x adjusted lm factor*

*Adjusted Lumen = 4821 x 1.006*

*Adjusted Lumen = 4849 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.*