

Project:	Catalog:	Type:
Notes:		

### Product Description

The MSUo-Green series provides advanced cleanroom features for supplemental lighting of the surgical /operating room. Located above the table perimeter it offers symmetric or asymmetric distributions. It is UL Listed for wet locations, certified dust tight and water resistant to IP65 for frequent rigorous cleaning practices. MSUo is Mil-Std- 461G certified and designed for recessed mounting in surgical ceiling systems as well as grid and flanged installations.

### Features

- Green & White LED Arrays
- Shallow Design, 4" Deep with Emergency
- Dimming to 1% (0-10v)<sup>1</sup>
- Triple gasketed cleanroom construction
- Mil-Std-461G certified
- Smooth lens for easy cleaning
- Room side access to all electrical components<sup>2</sup>

### Applications

- Medical Surgical Suites

### Featured Options

- Up to 24,000 lumens
- Symmetric & Asymmetric options\*
- Optional 90CRI White



### Housing

Precision formed; hole-free seam welded 20 gauge cold rolled steel housing. One standard 1/2" trade-size conduit entrance hole. See options for additional material choices and row mounting. Closed cell neoprene gasket provided to seal flange to ceiling.

### Door Frame

Overlapping one-piece door frame, fabricated from 20 gauge, cold rolled steel with TIG welded corners. Countersunk flat head, stainless steel, captive fasteners with integral seals. Door frame is removable, reversible, and hinged by stainless steel aircraft cables. Highly resilient and chemical resistant CertaSeal micro cellular closed-cell gasket seals door frame to the housing and/or ceiling.

### Lens

High diffusion, impact resistant 0.125" thick acrylic lens provides symmetric distribution. Smooth external surface for easy cleaning. Symmetric/asymmetric acrylic lens is optional. Radiated emissions (RE101) mitigated below Mil Std 461G limits by use of special filters and secondary circuit design elements. (This makes a metalized RFI grid no longer necessary.) Other lens options available. Lens sealed to door frame with silicone sealant.

### Gasket Systems

Triple gasketed: Lens: RTV 100% pure silicone seals lens to door. Door: Highly resilient and chemical resistant CertaSeal micro cellular closed-cell gasket seals door frame to the housing and/or ceiling. Housing: Closed cell neoprene gasket provided to seal flange to ceiling. Door screws: Silicone o-rings with special sealing flat-head screws.

### LED

LED board modules are high efficiency and closely regulated to maintain CRI, color consistency, lumen performance, and efficacy. Select from 3000K, 3500K, 4000K, and 5000K color temperatures with a color consistency of 3 SDCM, standard 80 CRI, optional 90 CRI. Optional 525nm Green LEDs arrays available alone or in combination with white LEDs. Lifetime L70 is greater than 60,000 hrs. Modules are field replaceable and commercially available. For MSUo with White LEDs [click here](#).

### Electrical

The standard electronic driver is constant current, programmable and dimmable to 1%<sup>1</sup> using a 0-10V protocol. High efficiency (>85%) and low THD (<10%). Certified to Mil-Std-461G for conducted emissions as well as FCC Part 15. 120-277Vac or 347Vac, 50/60hz. See "Options" for Lutron™ or DALI driver choices. Internal Emergency Drivers are serviceable from the room side<sup>2</sup>.

### Mounting/Installation

Flange installation is supported by swing style mounting brackets. Grid installation suitable for 1" and 1.5" T-Bar ceilings. See ordering key for additional 2" T-Bar support (option C57). Ambient operating temperature: -4°F (-20°C) to 104°F (40°C).

### Finish

5-stage pretreatment, polyester powder coating. Anti-microbial matte white (F36).

### Certifications

UL listed (CAN & USA) for wet locations under covered ceiling. Recessed Type IC for insulated ceilings. NSF2 for Non-food zone, Splash Zone. IEC60598 IP65 Certified. Mil-Std-461G certified. Cleanroom classified ISO3-8.

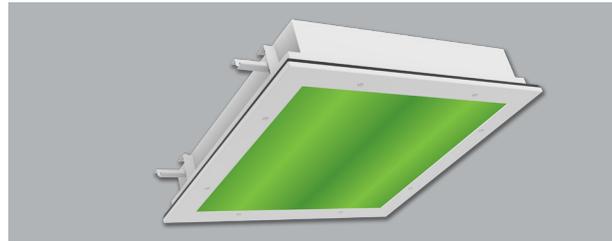
### Warranty

5-year limited warranty. For complete warranty, click here:

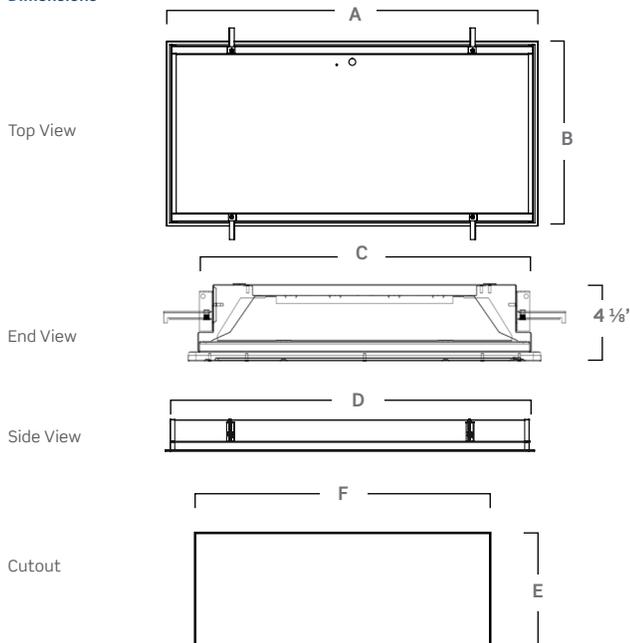


### Approvals

- UL listed to CSA and UL standards for insulated ceilings and wet location.
- Certified IP65 & Certified NSF2.
- MIL STD 461G Certified.
- Cleanroom class ISO3-8.



### Dimensions



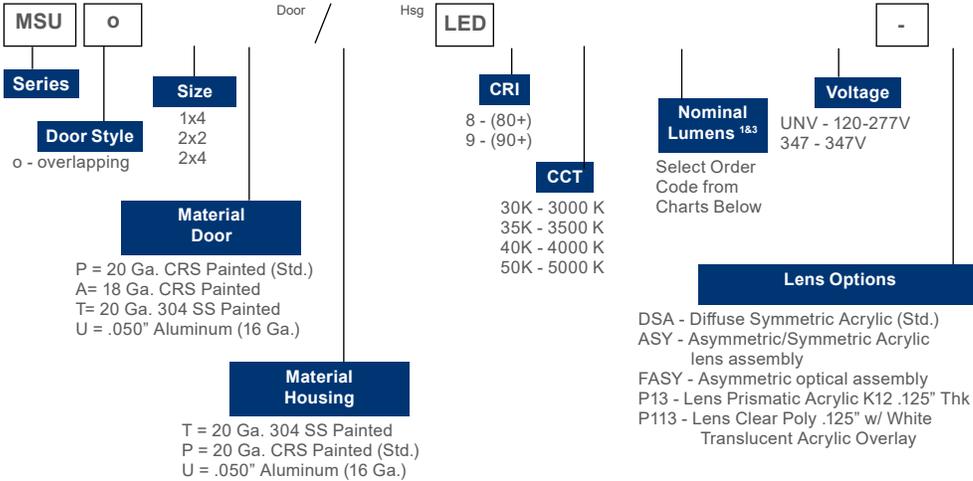
Dimensions (inch)						
Size	A	B	C	D	E	F
1x4	47.75	11.75	10.69	46.75	10.69	4.75
2x2	23.75	23.75	22.69	22.88	22.69	22.88
2x4	47.75	23.75	22.69	46.75	22.69	46.75"

Consult the installation guide for exact dimensions.

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**Order Key**

**EXAMPLE: MSUo2X4-P/PLED840K100L/50GUNV-DSA**



- Options**
- Driver Options**
- B02 Dimming Addressable Digital (DALI)
  - B39 Emergency Bat. Pack - LED 10 Watts2
  - B39(SD) Self Testing Emergency Bat. Pack 10 Watts2
  - V33 Two Circuit Switching (For white LEDs add V25 for additional RFI filter)
- Construction Options**
- C32 Chicago Plenum
  - C57 Housing for 2" T-Bar
- Finish Options**
- C77 Color Matched Stainless Screws
- Wiring Options**
- V25 Radio Frequency Filter
  - V55 Sealed wire way
  - V126 Deduct RF Filter(s)4
- Accessories**
- M46 Continuous Row Mtg. - Not Required for Grid
- Approvals and Ratings Options**
- X19 Deduct NSF Listing

Green & White LED Performance Data					
Size	Order Code	White LED Performance*			Total System Watts
		Lumens	Watts	Efficacy	
1x4	35L/32G	3585	32	112	83
	55L/32G	5538	51	109	102
	70L/32G	7064	68	104	119
2x2	35L/32G	3564	31	115	82
	35L/50G	5571	50	111	111
	55L/32G	5571	50	111	101
	70L/32G	7035	65	108	116
2x4	55L/32G	5517	45	123	90
	55L/50G	5517	45	123	115
	55L/100G	5517	45	123	184
	70L/32G	7085	59	120	104
	70L/50G	7085	59	120	129
	70L/100G	7085	59	120	198
	100L/32G	10093	80	126	125
	100L/50G	10093	80	126	150
	100L/100G	10093	80	126	219
	120L/32G	12096	99	122	144
	120L/50G	12096	99	122	169
180L/32G	18103	143	127	188	
180L/50G	18103	143	127	213	

\* Lumen values are based on 4000K, 80 CRI performance. See Lumen Multipliers below for other CCT or CRI performance data.

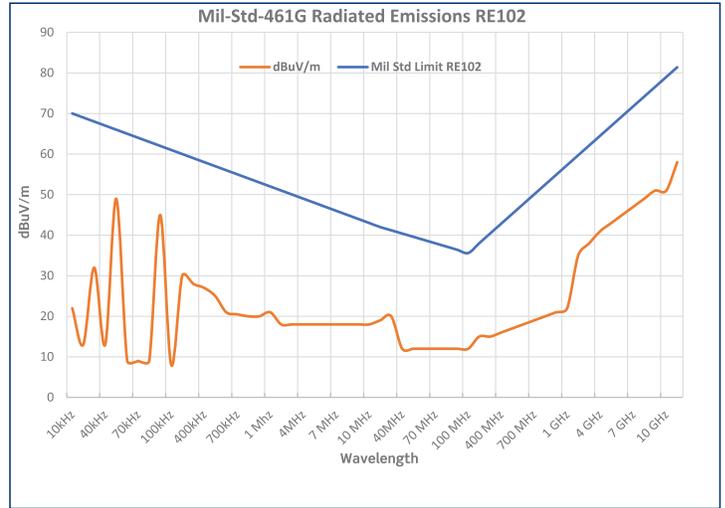
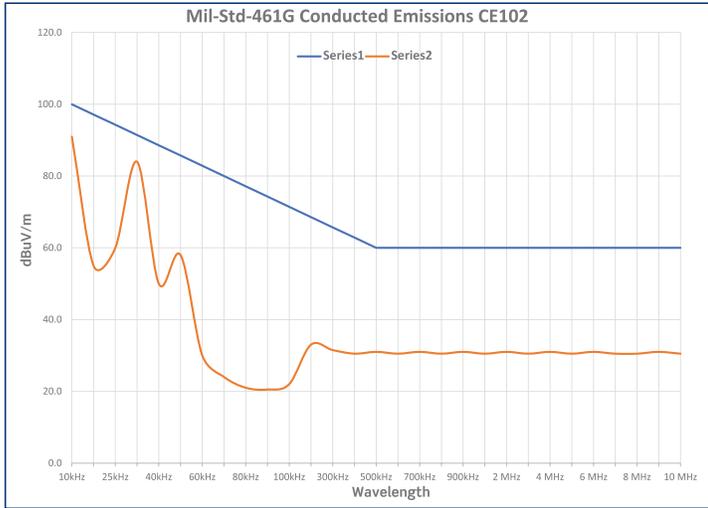
Green Only LED Performance Data			
Size	Order Code	Lumens	Watts
1x4	-/32G	3200	51
	-/50G	5000	80
2x2	-/32G	3200	51
	-/50G	5000	80
2x4	-/32G	3200	45
	-/50G	5000	70
	-/100G	10000	139

White LED Performance Multipliers		
CRI	CCT	Lumen Multipliers
80 CRI	3500K	0.98
	4000K	1.00
	5000K	1.04
90 CRI	3500K	0.83
	4000K	0.85
	5000K	0.90

<sup>1</sup> Standard for 100L, 120L, 180L & 240L is 5% dimming. Add option code "B03(01)" for 1% dimming for these lumen order codes.  
<sup>2</sup> Standard emergency battery pack options are internal and serviced from the room side. The exception is for some 2x2 wattages may have remote battery packs. Consult factory for details.  
<sup>3</sup> Omit white lumen order code where a green only fixture is desired. Ex: MSUJ2X4-LED/50GUNV-P/PSA  
<sup>4</sup> Removal of RF filters will also remove Mil-Std-461 certification. Fixture continues to meet FCC requirements

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**Mil-Std-461G Testing- Conducted and Radiated**



Conducted measurements are taken from the fixture power input leads in a laboratory. Radiated emissions are measured in an anechoic chamber designed to absorb indirect signals from the environment. The limits are shown in the red lines. Performance is shown on the yellow line. For more information on Mil-Std-461G see the Certolux Technical Brochure. [Click here](#)

**Photometrics**

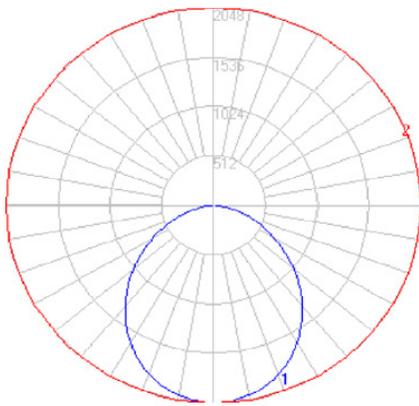
IES File: MSUo2x4-LED840Kx/50GUNV-P/P-DSA  
 Lumens: 5004  
 Wattage: 70  
 Efficacy: 71

**Zonal Lumen Summary**

Zone	Lumens	%Fixture
0.0° - 30.0°	1547.36	30.9
0.0° - 40.0°	2484.66	49.7
0.0° - 60.0°	4169.27	83.3
0.0° - 90.0°	5004.08	100
0.0° - 110.0°	5004.08	100
0.0° - 130.0°	5004.08	100
0.0° - 150.0°	5004.08	100
0.0° - 170.0°	5004.08	100
0.0° - 180.0°	5004.08	100

**Coefficients of Utilization**

ρc	80%			70%			50%		
	70%	50%	30%	70%	50%	30%	70%	50%	30%
0	119	119	119	116	116	116	111	111	111
1	110	105	101	107	103	99	102	99	96
2	100	92	86	98	91	85	93	87	82
3	92	82	74	89	80	73	85	77	71
4	84	73	64	82	71	63	78	69	62
5	78	65	56	76	64	56	72	62	55
6	72	59	50	70	58	50	66	56	49
7	67	54	45	65	53	45	62	51	44
8	62	49	41	61	48	40	58	47	40
9	58	45	37	57	44	37	54	43	36
10	55	42	34	53	41	34	51	40	33



**Average Luminance Table  
Luminance Data (cd/sq.m)**

	0.00°	45.00°	90.00°
45.00°	2341	2230	2193
55.00°	2082	1951	1906
65.00°	1743	1586	1536
75.00°	1227	1041	1023
85.00°	362	432	566

Effective Floor Cavity Reflectance: 20%

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**EM Ordering Guide**

EM Function	Order Code	Description	Notes
Standard EM	B39	10W EM battery pack	Standard 10W output, 90 minute run time in emergency mode.
High Wattage EM	B39(20W)	20W EM battery pack	Standard 20W output, 90 minute run time in emergency mode.
347V EM	347...B39	8W 347V EM battery pack	Fixture part number indicates 347V input voltage.
347 High Wattage EM	347...B39(20W)	20W 347V EM battery pack	Fixture part number indicates 347V input voltage.
Self Testing EM	B39(SD)	10W Self test EM battery pack	Self test instructions provided with each fixture. Digital copies available as needed.
Cold Weather	B06...B39	10W Cold weather EM battery pack suitable to -20°C	Standard EM battery pack 0°C minimum temperature.
120 Minute EM	B39(2HR)	EM battery pack with 120 minute minimum run time	Standard 14W output, 120 minute run time in emergency mode.
Specified EM	B39(xx)	Customer to specify brand, model number and/or feature.	xx Indicates model number of specified by Viscor.