

Project:	Catalog:	Type:
Notes:		

Product Description

The MSUo 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

- Shallow Design, 4" Deep with Emergency
- Dimming to 1% (0-10V)¹
- Triple gasketed cleanroom construction
- Mil-Std-461G certified
- Smooth lens for easy cleaning
- Room side access to all electrical components²

Applications

- Medical Surgical Suites

Featured Options

- Fully luminous lens aperture option
- Up to 24,000 lumens
- Symmetric & Asymmetric options
- Optional 90CRI



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 microcellular 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 (REI01) 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 microcellular 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 Green LEDs [click here](#).

Electrical

The standard electronic driver is constant current, programmable and dimmable to 1%¹ 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 side².

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

Anti-microbial gloss white polyester powder coat finish with 5-stage pre-treatment.

Certifications

UL listed (CAN & USA) for wet locations under covered ceiling. Recessed Type IC for insulated ceilings. NSF2 for Non-food zone, Splash Zone (See option X5 for Food Zone certification). IEC60598 IP65 Certified. Mil-Std-461G certified. Cleanroom classified ISO3-8.

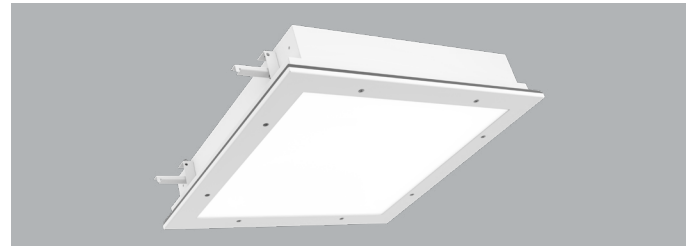
Warranty

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

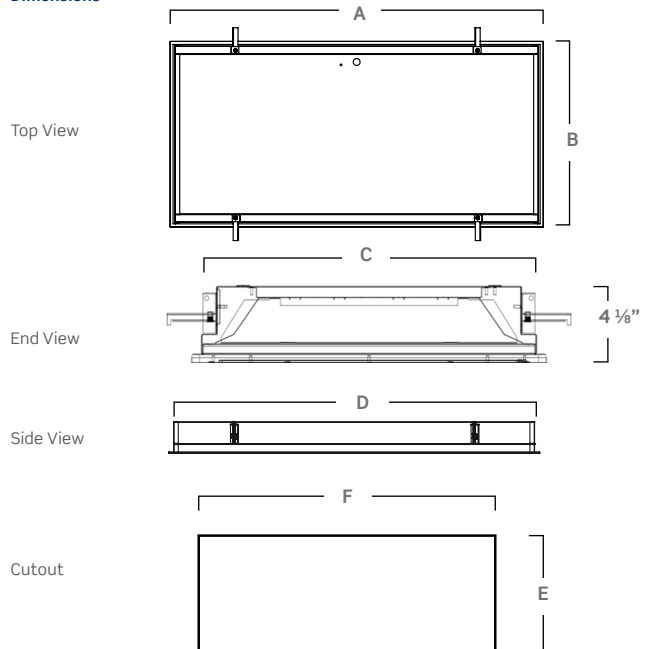


Approvals

- 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



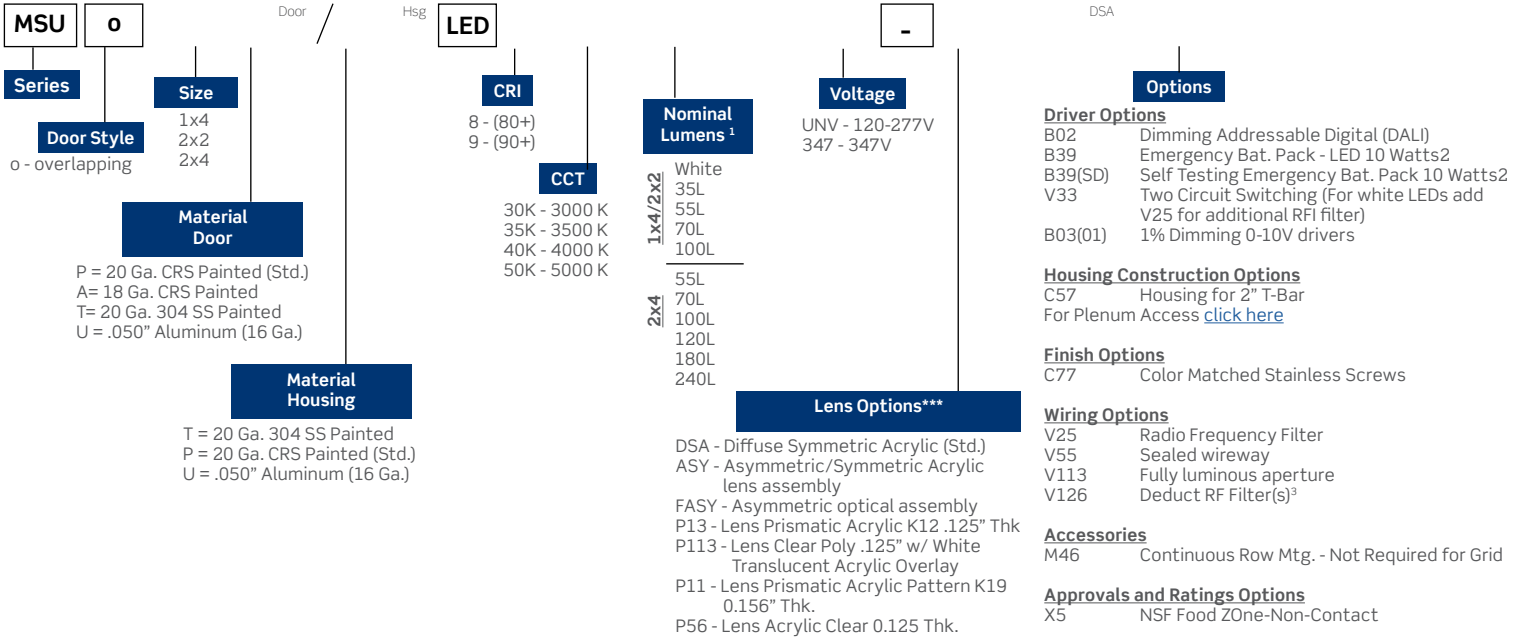
	Dimensions (inch) & Weights					
	A	B	C	D	E	F
1x4	47 3/4"	11 3/4"	10 11/16"	46 3/4"	10 11/16"	46 3/4"
2x2	23 3/4"	23 3/4"	22 11/16"	22 7/8"	22 11/16"	22 7/8"
2x4	47 3/4"	23 3/4"	22 11/16"	46 3/4"	22 11/16"	46 3/4"

Consult installation guide for exact dimensions.

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Order Key

EXAMPLE: MSUo2x4-P/PLED840K70LUNV-DSA



Note:
Other options may be available, consult factory.
Specifications and data subject to change without notice.

White LED Performance Data				
Size	Nominal Lumens	Delivered Lumens	Watts	Efficacy
1x4	35L	3585	32	112
	55L	5538	51	109
	70L	7064	68	104
	100L ¹	10100	96	105
2x2	35L	3564	31	115
	55L	5571	50	111
	70L	7035	65	108
	100L ¹	10121	93	109
2x4	55L	5517	45	123
	70L	7085	59	120
	100L	10093	80	126
	120L ¹	12096	99	122
	180L ¹	18103	143	127
	240L ¹	24102	198	122

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

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

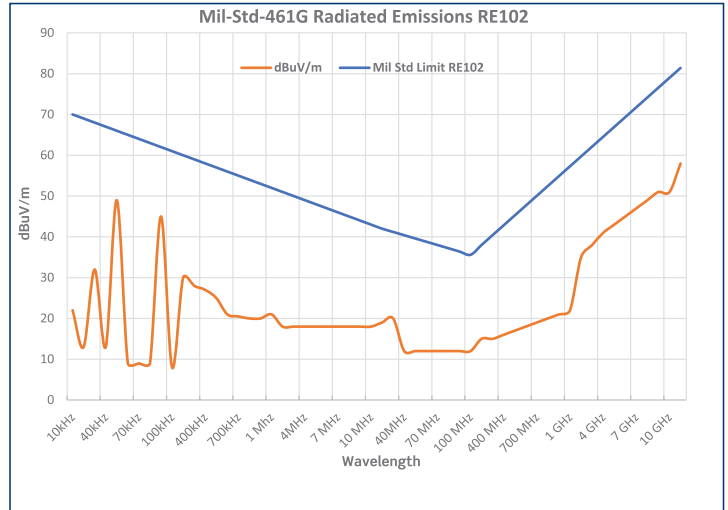
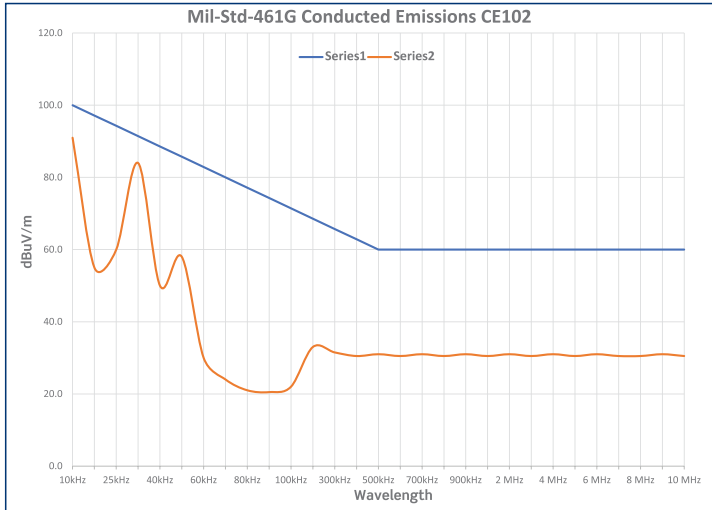
¹Standard for 100L, 120L, 180L & 240L is 5% dimming. Add option code "B03(01)" for 1% dimming for these lumen order codes.

² 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.

³ Removal of RF filters will also remove Mil-Std-461 certification. Fixture continues to meet FCC requirements.

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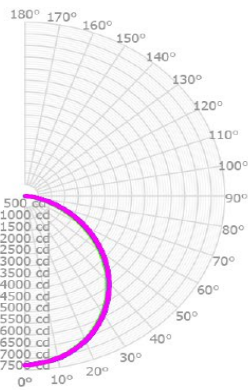
Mil-Std-461G Testing- Conducted and Radiated



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-LED840K180LUNV-P/P-DSA
Lumens: 18102
Wattage: 143
Efficacy: 127



Zonal Lumen Summary

Zone	Lumens	%Fixture
0.0° - 30.0°	5522	30.5%
0.0° - 40.0°	8896	49.1%
0.0° - 60.0°	15053	83.2%
0.0° - 90.0°	18102	100.0%
0.0° - 110.0°	18102	100.0%
0.0° - 130.0°	18102	100.0%
0.0° - 150.0°	18102	100.0%
0.0° - 170.0°	18102	100.0%
0.0° - 180.0°	18102	100.0%

Coefficients of Utilization

ρc ρw	80%			70%			50%		
	70%	50%	30%	70%	50%	30%	70%	50%	30%
	0	119	119	119	116	116	116	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 (cd/m²)

CP Summary			
	0.00	45.00°	90.00°
0.00°	10030	10030	10030
45.00°	8533	8358	8333
55.00°	7734	7459	7493
65.00°	6572	6116	6295
75.00°	4569	4058	4424
85.00°	1191	1822	2657

Effective Floor Cavity Reflectance: 20%