

| | | |
|----------|----------|-------|
| 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 and 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 CertSeal 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 (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 CertSeal 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

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 (See option X5 for Food Zone certification). IEC60598 IP65 Certified. Mil-Std-461G certified. Cleanroom classified ISO3-8.

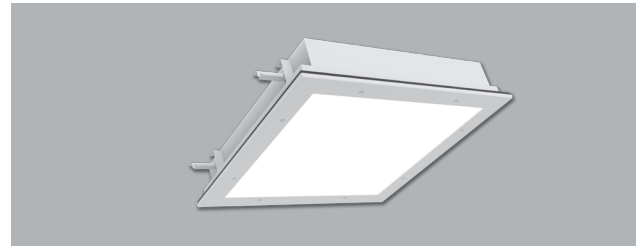
Warranty

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

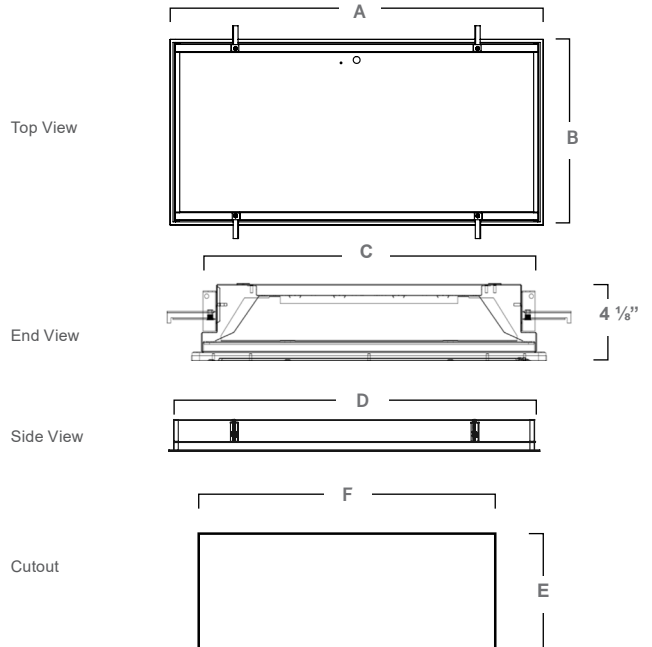


Approvals

- UL listed to CSA and UL standards for insulated ceilings and wet location.
- Certified IP65 and 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 | 46.75 |
| 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 installation guide for exact dimensions.

SPEEDSHIP

Refer to page 2 of the spec sheet for Speedship Items.

¹ Standard 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

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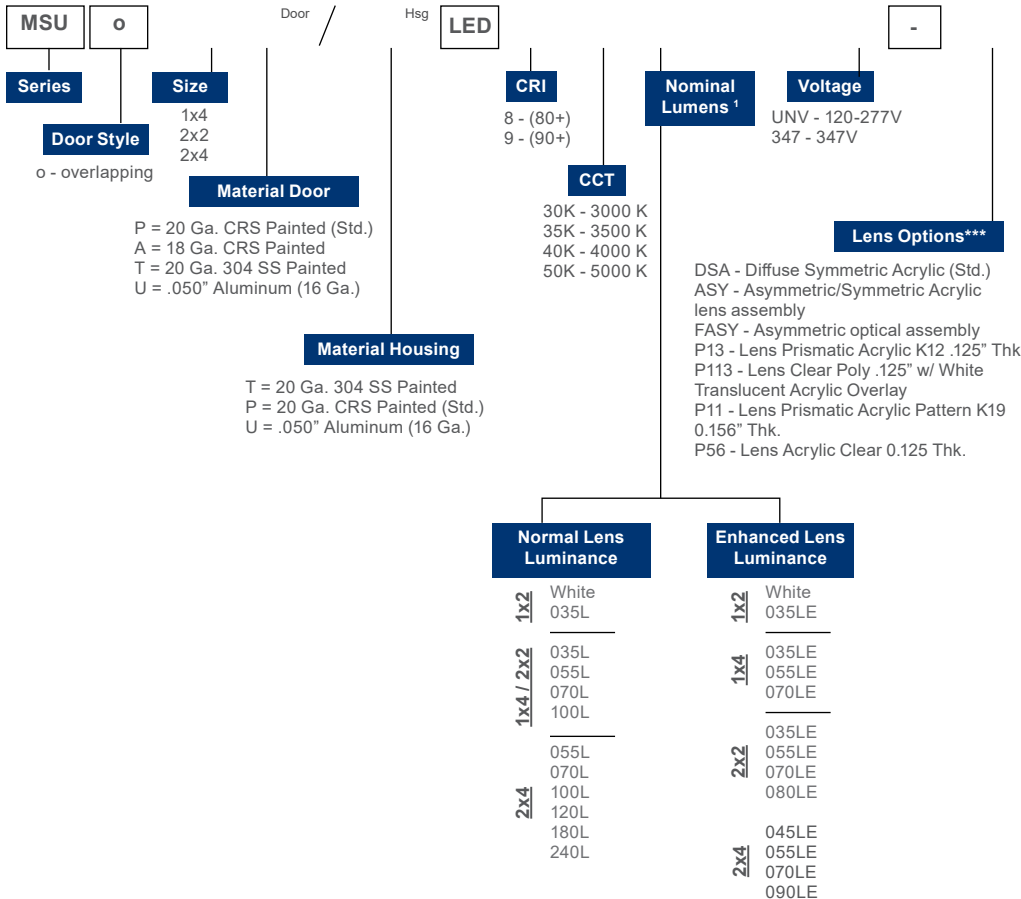
SPEEDSHIP ➤

Order Key for items that ship within 5 days.

| SKU | Description |
|-------------------------------|---|
| MSUo2x2A/P-led840K035LUNV-DSA | MSUo Overlapping Door Frame Size: 2x2 Material Door: A = 18 Ga. CRS Painted (Std.) Material Housing: P = 20 Ga. CRS Painted (Std.) CRI: 80+ CCT: 4000K Lumens: 35L, 55L, 70L & 100L Voltage: UNV - 120-277V Lens: DSA - Diffuse Symmetric Acrylic (Std.) |
| MSUo2x2A/P-led840K055LUNV-DSA | |
| MSUo2x2A/P-led840K070LUNV-DSA | |
| MSUo2x2A/P-led840K100LUNV-DSA | |
| MSUo2x4A/P-led840K055LUNV-DSA | MSUo Overlapping Door Frame Size: 2x4 Material Door: A = 18 Ga. CRS Painted (Std.) Material Housing: P = 20 Ga. CRS Painted (Std.) CRI: 80+ CCT: 4000K Lumens: 55L, 100L, 120L, 180L & 240L Voltage: UNV - 120-277V Lens: DSA - Diffuse Symmetric Acrylic (Std.) |
| MSUo2x4A/P-led840K100LUNV-DSA | |
| MSUo2x4A/P-led840K120LUNV-DSA | |
| MSUo2x4A/P-led840K180LUNV-DSA | |
| MSUo2x4A/P-led840K240LUNV-DSA | |

Order Key

EXAMPLE: MSUo2x4-P/PLED840K70LUNV-DSA



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)
- B03(01) 1% Dimming 0-10V drivers

Construction Options

- C32 Chicago Plenum
- C57 Housing for 2" T-Bar
- For Plenum Access [click here](#)

Finish Options

- C77 Color Matched Stainless Screws

Wiring Options

- V25 Radio Frequency Filter
- V55 Sealed wireway
- V126 Duct RF Filter(s)³

Accessories

- M46 Continuous Row Mtg. - Not Required for Grid

Approvals and Ratings Options

- X5 NSF Food ZOne-Non-Contact

Notes:

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

Enhanced lens luminance can only be selected with standard DSA lens

xxxLC = Specified lumens (must be < max. value per size) Consult factory for higher lumen options.

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.

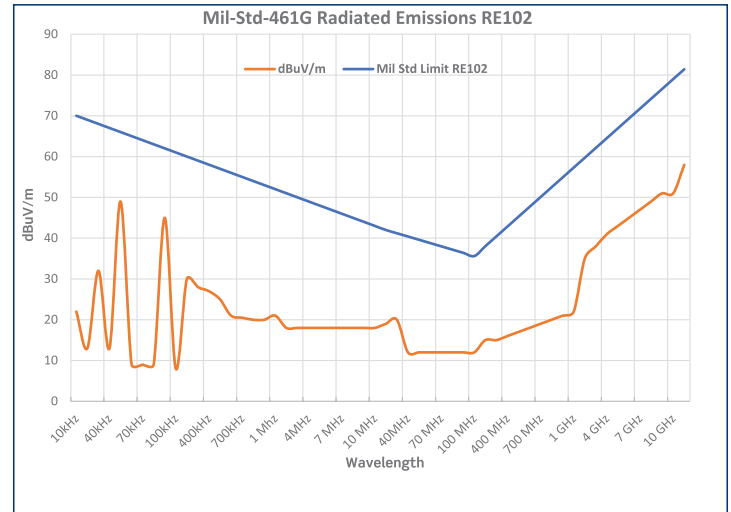
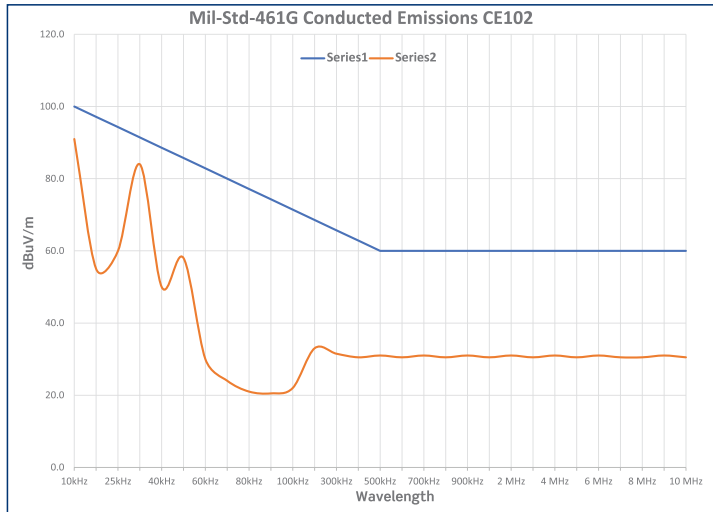
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| White LED Performance Data | | | | |
|----------------------------|-------------------|------------------|-------|----------|
| Size | Nominal Lumens | Delivered Lumens | Watts | Efficacy |
| 1x4 | 35L | 3585 | 32 | 112 |
| | 55L | 5538 | 51 | 109 |
| | 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.

Mil-Std-461G Testing- Conducted and Radiated

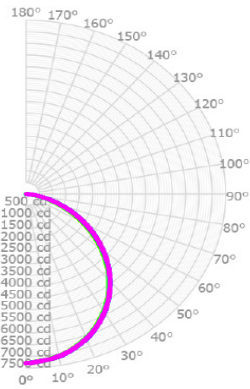


Conducted measurements are taken from the fixture power input leads in a laboratory. Radiated emissions are measured in an anechoic chamber designed to absorb indirect signals from the environment. The limits are shown in the red lines. Performance is shown on the yellow line. For more information on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

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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 | 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%

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. |