

# MEDMASTER CLEANSCENE™

## MRI/Imaging Suite Luminaires

### CSMRI SERIES

#### PRODUCT FEATURES:

- » Recessed ceiling mount – grid; 2'x4'
- » Non-ferrous construction
- » Antimicrobial finish option available
- » Expansive offering of high quality graphic images



#### SPECIFICATIONS

**HOUSING:** 18-gauge aluminum. Non-ferrous material content. Hole-free seam welded construction. TGIC polyester powder coat finish in standard white or optional black, with five-stage pre-treatment. Salt spray test: 1,000 hours. Antimicrobial finish optional on all exposed painted components of installed luminaire.

**DOORFRAME:** 18-gauge aluminum. Non-ferrous material content. One-piece inset construction, welded corners. TGIC polyester powder coat finish in standard white or optional black, with five-stage pre-treatment. Salt spray test: 1,000 hours. Quick, one-person installation and removal of doorframe for servicing of electrical components and graphic image. Internal hinge design. Ten (10) captive mounted Phillips-head stainless steel fasteners. Antimicrobial finish optional on all exposed painted components of installed luminaire. Closed cell silicone gasket seals doorframe to housing.

**LENS:** Smooth, .177" clear acrylic lens secured with continuous lens retention system.

**REGRESSED FRAME KIT (ACCESSORY):** One-piece, .08" thick, seamless aluminum construction TGIC polyester powder coat finish in matte white or black. Provides easy-to-install, architectural skylight effect by raising fixture 2-inches above standard 1" or 1.5" T-bar grid ceiling.

**ELECTRICAL:** Replaceable high-brightness 6500K LED light array. Luminaire input 24VDC from remote-located 120-277VAC, high-power-factor power supply with EMI filter. Dimming line EMI filter required if utilizing dimming function. Dimming capability controlled through compatible 0-10V dimmer (supplied by others). Dimming range 10-100%. MRI room EMI filter required (supplied by others). See below for ordering information.

**INSTALLATION:** All power and signal wiring must be completely shielded in grounded aluminum conduit. 1" or 1.5" T-Bar installation standard. Includes hardware to secure hanger wire. Regress Kit raises fixture 2".

**PHOTOMETRICS:** Photometry tested to the IESNA LM-79-08 standard by an ILAC/ISO17025 accredited laboratory. For photometric information, go to [www.kenall.com](http://www.kenall.com).

**WARRANTY:** Limited five (5) year LED warranty.

**LISTINGS:** Luminaire is certified to UL1598 and UL8750 standards by Intertek Testing Services for Damp Location. NSF2 Splash/Non-Food Zone.



#### ORDERING INFORMATION (Ex: CSMRI24-G10-D2-13L65K-24VDC)

Model	Mounting	Configuration	Lamp Type	Voltage	Options	Accessory	Image Selection
<b>CSMRI24</b>			<b>13L65K</b>	<b>24VDC</b>			
	<b>Mounting Options</b>	<b>Configuration*</b> (see below)	<b>Lamp Type</b>	<b>Voltage</b>			
	<b>G10</b> Grid (1")	<b>D1H</b> One Horizontal Fixture	<b>13L65K</b> 13 Watt 6500K LED	<b>24VDC</b> 24 Volts DC			
	<b>G15</b> Grid (1.5")	<b>D1V</b> One Vertical Fixture		<b>Options</b>			
		<b>D2</b> Two Fixtures per Configuration		<b>AMF</b> Antimicrobial Finish (All Exposed Surfaces)			
		<b>D3</b> Three Fixtures per Configuration		<b>BLK</b> Exterior Surfaces in Black			
		<b>D4</b> Four Fixtures per Configuration		<b>Accessory</b>			
		<b>SC</b> Specified Configuration (Consult Factory)		<b>RFK24W</b> Regressed Frame Kit in White			
				<b>RFK24B</b> Regressed Frame Kit in Black			

**FIXTURES PER CONFIGURATION\***

**D1H**

**D3**

**D1V**

**D4**

Configuration	Size	Number of Fixtures
D1H/D1V	2'x4'	1
D2	4'x4'	2
D3	4'x6'	3
D4	4'x8'	4

Consult factory for alternate configuration requests.

**Image Selection**  
 Click [here](#) for CleanScene lightbox image selections and ordering numbers. Consult factory for alternate image selection approval.

▲ When ordering: only order total number of configurations needed

GRAPHIC IMAGE SIZE NEEDED – 2x4 FIXTURE	
<b>Grid 1.0 (G10)</b>	21.00x45.00
<b>Grid 1.5 (G15)</b>	20.50x44.50

ACCESSORIES ORDERED SEPARATELY	
<b>MRIPSF</b>	Remote Power Supply with EMI Filter ( <a href="#">click here for specifications</a> )
<b>MRIFD-1A</b>	Dimming Filter (one per dimming circuit, <a href="#">click here for specifications</a> )

MRI LUMINAIRE CONNECTION PER POWER SUPPLY					
Luminaire Number	Lamp Power	Amps/ Luminaire	Max Luminaires per MRIPSF-480 Power Supply	Max Luminaires per MRIPSF-240 Power Supply	Max Luminaires per MRIPSF-120 Power Supply
<b>CSMRI24</b>	13L	0.76	26	13	6

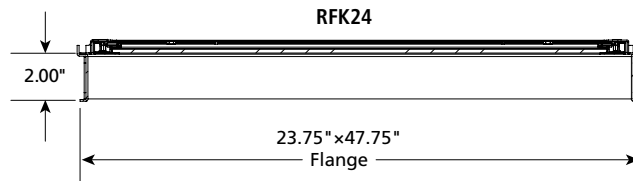
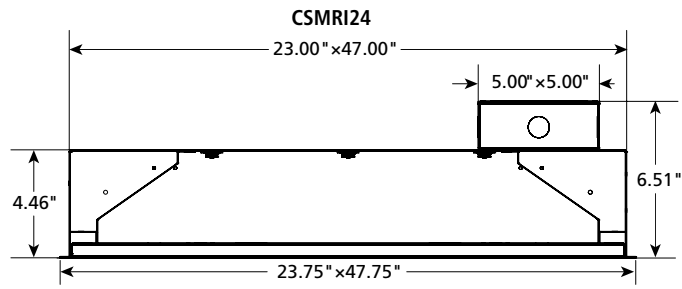


# MEDMASTER CLEANSCENE™

MRI/Imaging Suite Luminaires

## CSMRI SERIES

### DIMENSIONAL DATA



\*Subtract .50" from housing width and length when 1.5" grid mounting option is specified.

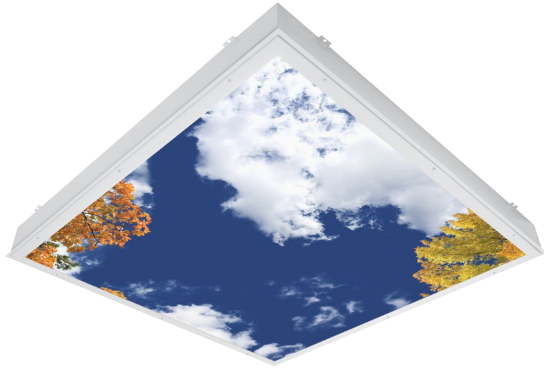


**CSMRI SERIES**

**IMPORTANT SAFEGUARDS**

**When using electrical equipment, basic safety precautions should always be followed, including the following:**

THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED. DISCONNECT POWER TO ALL CIRCUITS BEFORE WIRING FIXTURE. INSTALL IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL CODES. DO NOT CONNECT TO AN UNGROUNDED SUPPLY. READ ALL FIXTURE MARKINGS AND LABELS TO ENSURE CORRECT INSTALLATION OF FIXTURE. SUPPLEMENTAL INSTRUCTIONS MAY BE LOCATED ON THE FIXTURE, IN ADDITION TO THIS INSTRUCTION SHEET, REGARDING ORIENTATION, OR MOUNTING RESTRICTIONS.



**INSTALLATION INSTRUCTIONS**

- Disconnect power to all circuits before wiring system.
- Install in accordance with all national, state, and local codes.
- Do not connect to an ungrounded supply.
- Wiring connections must be made internal to the enclosure.
- Failure to install unit on a mechanically-sound surface may result in personal injury, physical damage, or potential fire hazard.
- Use installation procedures appropriate for an environment involving MRI and sensitive electronic equipment.
- Read all markings and labels to ensure correct installation of the power supply. Supplemental instructions may be located on the enclosure, in addition to this instruction sheet, regarding orientation, or mounting restrictions.
- Read instructions provided with the MedMaster™ MRIPSF-480 external power supply system for proper installation and electrical connection to the lighting system.

**I. LIGHTBOX MOUNTING PROCEDURE**

CleanScene MRI™ lightboxes are designed for either 1" or 1½" (G10 or G15 respectively—see product label) T-bar grid systems with vertical grid T thickness of less than ¼". Grid systems can be installed with standard 24" x 24", 24" x 48" or 48" x 48" centerline grid spacing.

Use the following procedure to install the lightbox(es) into the ceiling grid:

- Unpack products from the shipping carton.
- Determine where lightbox(es) will be mounted and note the desired orientation of graphic images within room.

NOTE: For installations with a multiple-configuration (the image is divided among multiple lightboxes), make sure lightbox is oriented to produce a continuous image.

- It is recommended that the door remain attached to the lightbox housing during installation. This will prevent damage to internal components, particularly the LED light sources. All electrical connections are accessible through the external junction box located on the top of the lightbox housing.

**SAVE THESE INSTRUCTIONS**



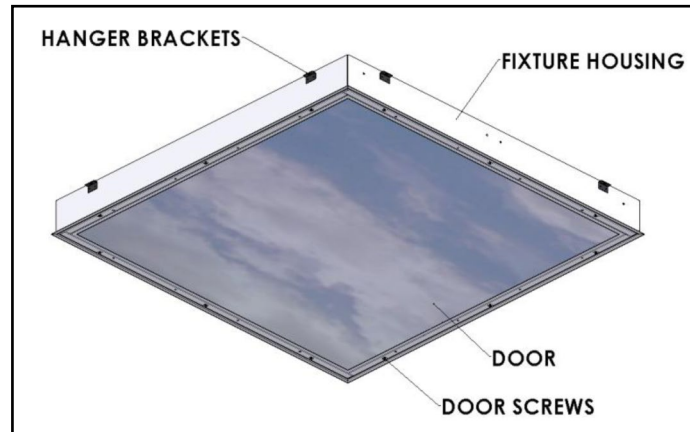
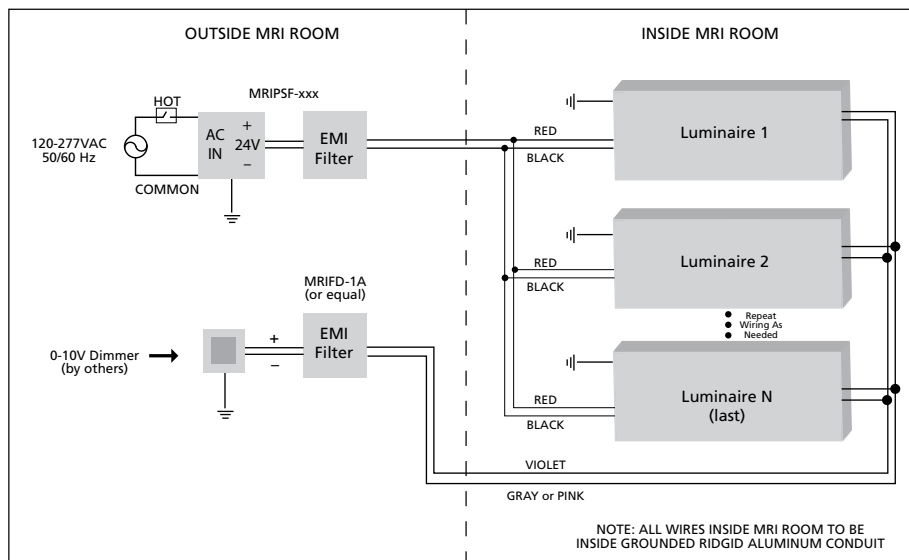


Figure 1: Product Description

- Lift lightbox(es) into ceiling structure using a recommended minimum of two able-bodied individuals.
- Lay lightbox(es) into grid.
- Attach support wires between hanger brackets and ceiling support structure.
- Install the MRIPSF remote power supply and EMI filter in accordance with the supplied installation instructions.
- If a 0-10V dimming circuit is to be connected, install at this time. The 0-10V dimmer must be installed outside the shielded MRI environment with the Kenall MRIFD-1A dimming line filter (or equivalent) installed in accordance with the supplied installation instructions. Kenall recommends the Lutron Diva (DVSTV) and Lutron Nova T (NTSTV-DV) series to ensure full range of dimming can be achieved.

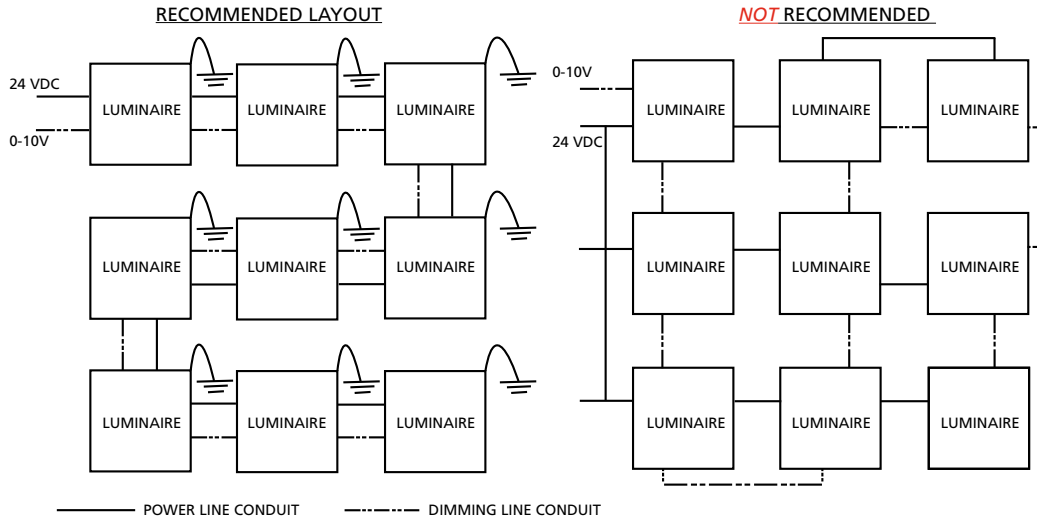


Single-Supply System Schematic

- Run DC wiring, equal in size and temperature rating to the filter input wiring, between the filter output cables and the first luminaire within the shielded room. Follow recommended wiring layout described within Single-Supply System Schematic. All wiring must be within completely-enclosed, grounded conduit suitable for an MRI environment. Any gaps, regardless of size, must be closed or wrapped in copper foil tape. Special attention should be paid to the wiring entry point into the shielded space. Class 1 wiring methods are required.



- Run the dimming signal wiring, equal in specification to the filter input wiring, between the filter output cables and the first luminaire within the shielded room. Maintain polarity between input and output sides of the filter and follow wiring recommendation in Multi-Fixture Wiring Schematic. All wiring must be within completely enclosed, grounded conduit suitable for an MRI environment. Any gaps, regardless of size, must be closed or wrapped in copper foil tape. Special attention should be paid to the wiring entry point into the shielded space. Cap gray (or pink) and violet leads at luminaire(s) if dimming function is not implemented.
- Connect power on line voltage side and test system operation. Test operation of lighting system, including dimming functionality, during MRI machine idle mode and during scanning operations.
- Fill out the Installation Registration Form and fax to Kenall at (262) 891-9701.



Multi-Fixture Wiring Schematic

**II. DOOR OPENING, CLOSING AND REMOVAL PROCEDURE**

NOTE: OPENING THE DOOR DURING NORMAL INSTALLATION IS NOT NECESSARY. ALL WIRING SHOULD BE ACCESSED THROUGH THE EXTERNAL JUNCTION BOX MOUNTING AT THE TOP OF THE LIGHTBOX HOUSING.

**Opening the Door**

- Unfasten all door screws. The screws contain a captive washer which prevents it from falling out of the door. Only unfasten to the point where the screw is disengaged from the fixture housing. Door will now hang freely about 1½" below the housing.
- Test operation of lighting during MRI machine idle mode and during scanning operations.
- Disengage spring clips from fixture housing on one side of the door. This will allow the door to pivot down (see WARNING)

WARNING: DO NOT ALLOW THE DOOR TO SWING DOWN FREELY. SERIOUS PERSONAL OR PROPERTY DAMAGE MAY OCCUR. PIVOT DOOR SLOWLY UNTIL IT RESTS VERTICALLY.

- Perform internal maintenance with door hanging vertically. To change graphic image the door will need to be removed.



## Removing the Door

- Open door following instructions in the previous section.
- CSMRI24 and CSMRI44: With door hanging vertically, grasp sides of door frame and lift vertically to disengage the door catch hooks from the housing. The door is now detached from the lightbox. See Figure 4.

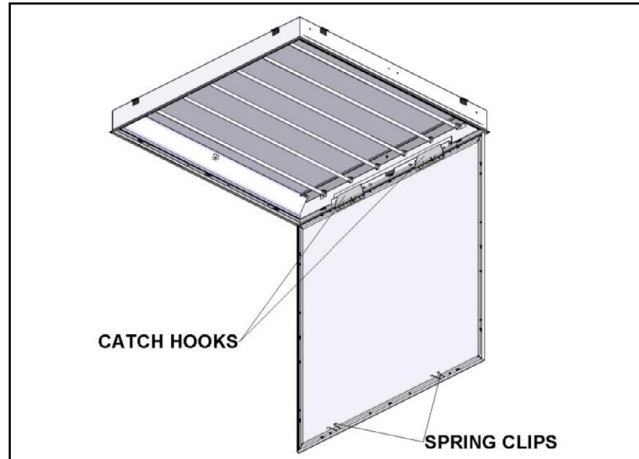


FIGURE 4: Door Attachment

- CSMRI22 only: This product contains four (4) spring clips to retain the door after removing the screws. To remove door, disengage the remaining spring clips.
- Lay door flat on a protected surface while performing maintenance.
- If the intent of removing the door is to change the graphic image, please refer to Section III.

## Installing the Door (CSMRI24 and CSMRI44)

- Lift door with the catch arms upward.
- Hook catch arms into housing flange so that catch arms rest on housing flange and engage the mating slots on the housing.
- The door should now hang freely. Check for proper engagement of catch hooks before closing door.

## Installing the Door (CSMRI22)

- Lift door by spring clips on one side.
- Engage spring clips on one side to hang vertically.

## Closing the Door

- With catch hooks (clips for CSMRI22) properly engaged into housing, swing door from the bottom end, up until the spring clips on the opposite side meet the housing flange.
- Squeeze spring clips and insert into slots on housing flange (located near the lens gasket). Door will now hang horizontally below the lightbox approximately 1½".
- Push up on one side of the door so that the captive lens screws meet the cage nuts attached to the housing.
- Fasten lens screws into place by working around the perimeter. No specific fastening order is required.

Check to ensure that all screws are adequately tightened to maintain ratings on fixture. All screws should be equally torqued—do not over-torque.



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#### **IV. CLEANING THE LENS AND GRAPHIC PANEL**

Use the following procedure to properly clean the graphic panel and clear acrylic lens. This should be done in a clean, dust-free environment to avoid additional contamination. The printed side of the graphic panel is a sensitive photographic film. Handle with extreme care. Avoid contact with solvents and oils from the skin as they may permanently damage the image.

- Remove graphic panel from door.
- Gently wipe down image with a clean, damp micro-fiber cloth. Hard wiping and abrasive cloths will scratch the film and clear lens.
- For heavier smudges and residue, use a diluted mild dish soap solution. Afterward, rinse-off solution with a clean, damp microfiber cloth.
- Dry panels with a clean, dry micro-fiber cloth.

#### **CUSTOMER SERVICE**

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For technical assistance, call 1-800-4KENALL (1-800-453-6255).

#### **WARRANTY**

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For warranty information visit [www.kenall.com/Resources/Certified-Performance-Warranties](http://www.kenall.com/Resources/Certified-Performance-Warranties)



## CUSTOMER ACKNOWLEDGEMENT

Customer acknowledges that these Installation Instructions are part of the product specification, and that the attached Installation Registration Form will be provided to the installer to sign and return to Kenall after installation is complete. This signed release is required by Kenall before order will be released into production.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

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## IMPORTANT SAFEGUARDS

To prevent MRI machine interference, all DC power and dimming signal wiring must be completely shielded within grounded aluminum conduit and a suitable MRI room EMI filter must be installed on each line.

When using electrical equipment, basic safety precautions should always be followed, including the following:  
THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.

## SAVE THESE INSTRUCTIONS

- 
- Disconnect power to all circuits before wiring system.
  - Install in accordance with all national, state, and local codes.
  - Do not connect to an ungrounded supply.
  - Wiring connections must be made internal to the enclosure.
  - Failure to install unit on a mechanically-sound surface may result in personal injury, physical damage, or potential fire hazard.
  - Use installation procedures appropriate for an environment involving MRI and sensitive electronic equipment.
  - Read all markings and labels to ensure correct installation of the power supply. Supplemental instructions may be located on the enclosure, in addition to this instruction sheet, regarding orientation, or mounting restrictions.
  - Read instructions provided with the MedMaster™ MRIPSF remote power supply and DC filter system for proper installation and electrical connection to the lighting system.





# CUSTOMER ACKNOWLEDGEMENT

## MRI INSTALLATION REGISTRATION FORM

Customer acknowledges that the attached Installation Registration Form will be provided to the installer to sign and return to Kenall after installation is complete. For warranty purposes, please fill out this form and return to Kenall by fax at (262) 891-9701.

I certify that the lighting installation for the listed MRI suite location is completed per the provided installation instructions and to the best of my abilities.

Please check off items to denote status:

- Installation instruction sheets for MRIPSF remote power supply and DC filter system and individual luminaire(s) read and followed.
- MRIPSF power supply and EMI filters are located outside the shielded enclosure.
- All DC supply wiring is completely enclosed within grounded aluminum conduit. Installation has no ungrounded/unshielded portions of conduit or openings of any size or shape.
- All dimming signal wiring is completely enclosed within grounded aluminum conduit. Installation has no ungrounded/unshielded portions of conduit or openings of any size or shape. Check here if dimming is not applicable:
- MRI Room EMI filters for the 24VDC supply and dimming signal are of the type intended for MRI suites and are sized to the electrical load.
- DC supply power and dimming signal are NOT running through the same EMI filter. Check here if dimming is not applicable:
- Lighting system fully tested (including dimming operation, if applicable) while MRI machine is in idle and scan operation mode.

If any of these steps cannot be completed or you need technical assistance, please contact Kenall Technical Support at 1-800-4KENALL (1-800-453-6255).

Electrical Contractor

Installation Site

Name: \_\_\_\_\_

Name: \_\_\_\_\_

City/State: \_\_\_\_\_

City/State: \_\_\_\_\_

Phone: \_\_\_\_\_

**FAX FORM TO (262) 891-9701**

Installation Date: \_\_\_\_\_

(Do not write below line)

Kenall Received By: \_\_\_\_\_ Received Date: \_\_\_\_\_

