



MRI Series

Healthcare Lighting Without Compromise



Healthcare division

BalancedCare™





The very nature of an MRI room is intimidating; designing for this application goes beyond meeting the required light levels. It's about creating a sense of calm by introducing biophilic elements, while providing safe operation among all the sensitive equipment in the room. Architectural linear lighting has traditionally been excluded from complex MRI suites - until now.

BalancedCare™ by Axis addresses these needs with an expanded portfolio of architectural healthcare luminaires for MRI applications. Now featuring Silent Source™ technology, an all-inclusive approach that reduces the noise responsible for unwanted artifacts in scanned images, housed in an easy-to-install enclosure, complete with filters, drivers and wiring.

Form meeting function – it's in our DNA.

MRI Series

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The BalancedCare™ MRI Approach

As perhaps one of the most sophisticated and intimidating spaces in the healthcare environment, the MRI room demands a balanced approach to lighting that combines optimal performance, safe operation, and modern aesthetic for the very best patient and staff experience.

The BalancedCare™ approach to MRI lighting ties it all together by rethinking lighting products and performance in a way that addresses ALL the requirements of today's complex healthcare environment.

BalancedCare™ products are designed to promote wellness and simplify caregiving through a full range of desirable product attributes, enabling healthcare lighting without compromise.



Optimal MRI Performance

- Reduced risk of scan artifacts due to exclusive Silent Source™ technology in all MRI Series lighting systems.
- Specially engineered platform ensuring low-noise MRI lighting.
- Low-wattage, constant voltage drivers requiring smaller filters, increasing scalability, and producing less noise.
- Multiple small filters provide a safeguard if a single filter malfunctions.
- Each 0-10V circuit from a Remote Power Supply (RPS) allows dimming at a wall dimmer switch, which is physically located outside the MRI Scanning Room; this results in less risk of radio frequency interference.
- Luminaires should be independently tested and certified to meet Military Standard 461G.

Architectural Lighting Design

- A comprehensive offering of architectural designs and dimensions to provide a fresh approach to MRI lighting.
- Streamlined luminaires designed around today's LED technology.
- Unique graphic series that includes a novel 3D effect, a continuous uninterrupted luminous image, a recessed skylight effect, and a series of sconces to tie a theme together - all provide comfort through biophilic design.

Positive Patient & Staff Experience

- Modern design options provide dimming for a more soothing experience.
- Biophilic options bring a sense of tranquility.
- Flicker-free illumination protects patients and staff alike.
- Visual comfort via shadow-free, glare-free patented BeWell™ optics.

MRI Design Objectives

The MRI suite is typically comprised of three main areas: a control room where staff read scans; a scanning room where the MRI machine – whether open or closed – is located and patients are wheeled in and transferred to the MRI table to prepare for the image scanning procedure; and a component or equipment room, which houses remote drivers, EMI/RF filters, and power supplies.



Shielded Imaging Room

Because of the strong magnetic force in the actual imaging room, luminaires need to be constructed of non-ferrous materials (no iron). Additionally, MRI machines emit powerful RF signals that can interfere with electronic equipment in the room. To prevent image artifacts, luminaire drivers must be equipped with protective RF filters. The lighting must be visually appealing and dimmable to create a relaxing environment for the patient. The recommended light levels range from 5-50fc.



Control Room

(Non-Shielded MRI Installation)

Lighting in the control room should enhance the staff's ability to evaluate the images on a monitor. Indirect lighting on the surrounding walls and dimmable LED sources is desirable, giving the staff control of the light levels for their tasks. The recommended lighting requirement is 10-30fc on the horizontal task plane.



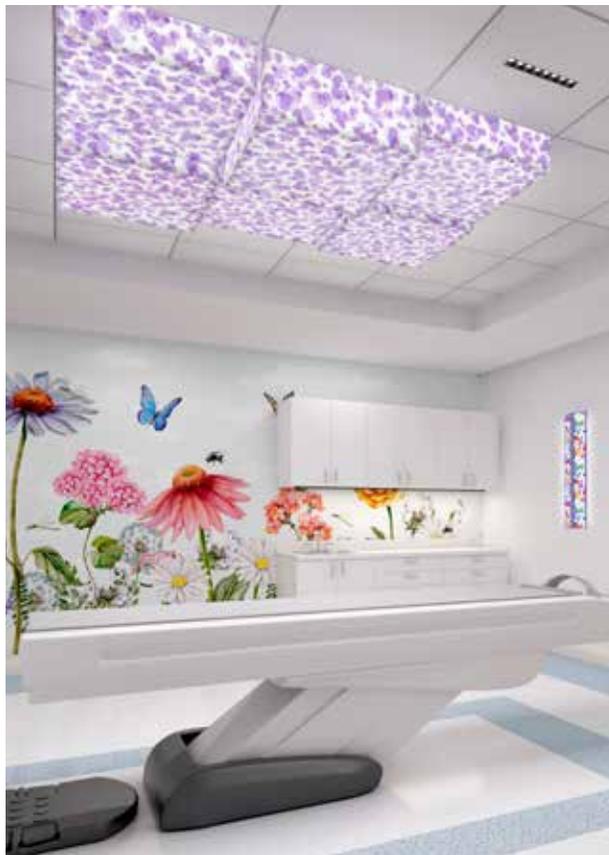
Equipment Room

(Non-Shielded MRI Installation)

The equipment room houses all electronic components, RF filters and power supplies. It is a service area that facilitates maintenance of all electronic equipment used in the room. General ambient illumination, 30-50fc, is ideal for this space.

Beyond ensuring that MRI luminaires are non-ferrous* and won't create objectionable radio frequency (RF) interference, they must meet recommended illuminance requirements for this complex environment. In general the lighting requirements vary, but the target illuminance levels range from 5 - 50 footcandles (fc) - see chart below.

Another consideration is the ability to control the light levels for patient comfort. Dimmable sources are ideal in this space to help ease anxiety for the patient, and minimize veiling reflections on the monitors for the staff. Lighting should be uniform throughout the suite, but concentrated over the procedure bed. Lighting is typically used as a soothing technique, with playful graphics or color-changing capability to distract the patient from the procedure at hand.



Diagnostic Radiology & Imaging				
Criteria apply to various scanning methods, such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Ultrasound				
Task	Note	Horizontal (Eh)	Vertical (Ev)	Uniformity (Avg:Min)
Control Room/ Alcove	Eh at 2'6" AFF Ev at 4' AFF	10fc	5fc	3 to 1
Image Viewing	Eh at 2'6" AFF Ev at 4' AFF	30fc	10fc	3 to 1
Ceiling Art	Introduce backlit photomurals or art panels above recumbent patient's head position			
Preparation	Eh at 3' AFF Ev at 4' AFF	50fc	15fc	3 to 1
Procedure	Eh at 3' AFF Ev at 4' AFF	5fc	2fc	4 to 1

The most important lighting objectives in this suite are:

- Use of non-ferrous* materials in luminaires – even a paper clip can become a projectile due to the strength of the MRI's magnetic fields.
- Meet the recommended industry-established illuminance criteria.
- Luminaire layout is task-oriented for the staff, yet comfortable and positively distracting for the patient.
- Remote DC-rated low-voltage drivers; driver output must be filtered prior to entering the shielded MRI suite.
- Designed for ease of installation and maintenance.

*Non-ferrous materials, such as aluminum and copper, do not contain iron.

MRI Challenges

MRI scanners employ very strong magnetic fields (usually between 1.5 Tesla and 3 Tesla*), radio waves, and Radio Frequency (RF) sensors to create images of body organs. The combination of strong magnetic fields and radio waves makes the MRI machine a source of extremely high electromagnetic emissions while making it susceptible to interference from external sources, as well. Even the lowest levels of noise can impact the MRI machine functionality and create artifacts in the scans.

The RF produced inside the room, as well as noise from other sources, can cause interference with equipment, and can reach MRI machines and digital circuits by traveling through electrical cables or through the air. Reduction or elimination of that noise is required for both conducted (cables) and radiated (air) emissions.

MRI equipment, supporting systems and lighting all require electrical power to operate, therefore cabling must enter the room. Cable installation can compromise the integrity of the MRI room shield, allowing both radiated and conducted emissions to enter and exit the room. MRI room filters have traditionally been used to address this concern.

* Tesla (T) is a unit of magnet strength measurement; one Tesla = 10,000 Gauss. By comparison, the earth's magnetic field is 0.00006 T or 0.5 Gauss.

Since the BalancedCare™ Silent Source™ system is outside the shielded room, it greatly minimizes the risk of compromising the shield and ultimately provides the safest levels of operation in the industry.

What is EMI?

Electromagnetic Interference (EMI) is equipment-generated 'noise' that can create unwanted artifacts, or distortions that appear in tissue and structures in MRI scans. EMI can be caused by interference with RF from various electronic components, or when RF shielding is compromised.



All Silent Source™ components are isolated within one remote enclosure located in the equipment room, facilitating maintenance and operation.

The BalancedCare™ Silent Source™ Solution

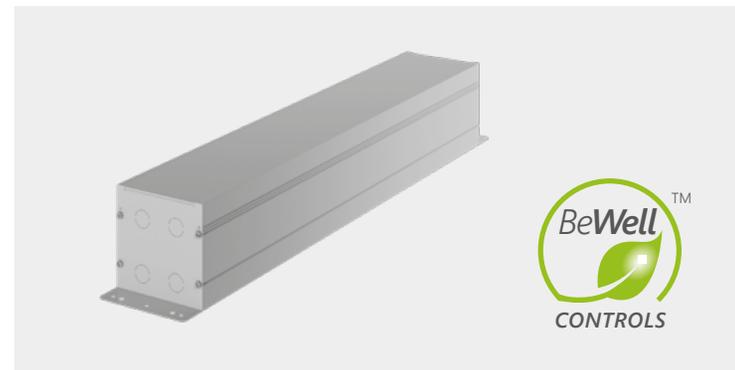
Traditional MRI solutions are complicated and costly, employing expensive large-scale filters to reduce the noise from LED Pulse Width Modulation (PWM) systems. The use of copper tape has often been used to provide additional protection to seal the fixtures and provide shielding of emissions. This is labor intensive and costly.

We have the solution... we take a complex installation and make it simple.

The BalancedCare™ Silent Source™ Difference

BalancedCare™ Silent Source™ technology is part of an all-encompassing, easy-to-install Remote Power Supply (RPS) system – complete with the necessary filters, drivers and wiring needed to safely operate the luminaires. With simple electrical connections in the equipment room, the dimmable luminaires deliver the proper illumination and comfort in an otherwise stressful environment. All while providing safe operation that meets the most stringent testing standards for one of the most sensitive rooms in healthcare.

- Easy installation with filters, drivers and wiring included.
- Smaller filters produce less noise, use less power, and are less expensive than traditional larger filters.
- 0-10V dimming from the Control Room.
- AC/DC 120-277V constant voltage 24V with unique analog dimming, 0-10V integrated circuit.
- Multiple low-wattage drivers can be combined per RPS enclosure.
- Independently tested and certified to meet MIL-461G (Air Force/Navy Fixed) standards.



The RPS enclosure is a non-ferrous, all-aluminum construction. It is available in three sizes:
 12" contains one driver, plus filters
 21" contains two drivers, plus filters
 29" contains three drivers, plus filters

Architectural Form

BalancedCare™ MRI luminaires provide timeless, stylized forms concealing sophisticated technologies that complement and enhance today's architecture. Sleek, low-profile styles replace mundane, institutional looks of the past, emphasize aesthetics, and elevate MRI lighting design to today's standards.



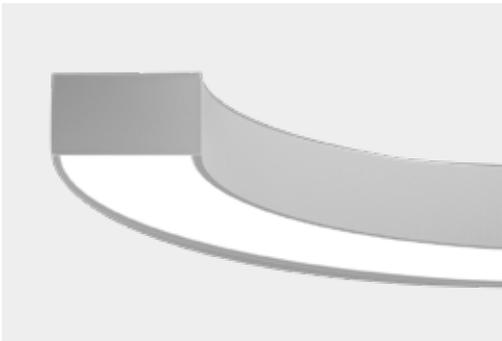
MRI Pixel™ Downlights



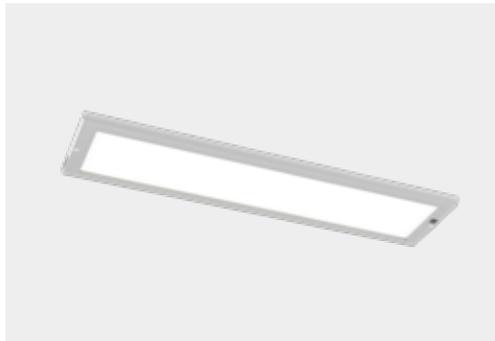
MRI Beam Recessed



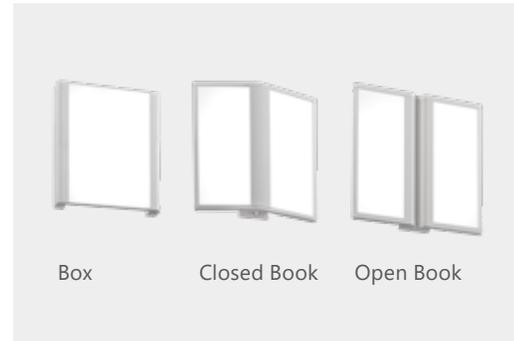
MRI Flexible Ambient



MRI Sketch® Curved Recessed



MRI Undercabinet



Box Closed Book Open Book

MRI Sconces

Tranquility Options

With Tranquility's broad selection of appealing images and textured patterns – and wide choice of wall-mount and ceiling-mount luminaires and layout possibilities – the MRI Tranquility Series has all the flexibility to meet the needs of any environment.



MRI Drop Lens



MRI Overlay Lens



MRI Regressed Lens



MRI Box



MRI Closed Book



MRI Open Book

MRI Pixel™ Downlights

The highly aesthetic 1.5" square-in-square optical system delivers superior visual comfort, even at high light output levels. This new, architecturally pleasing take on MRI downlighting is constructed to meet the demands of any MRI room while outperforming yesterday's traditional reflector-based technology.

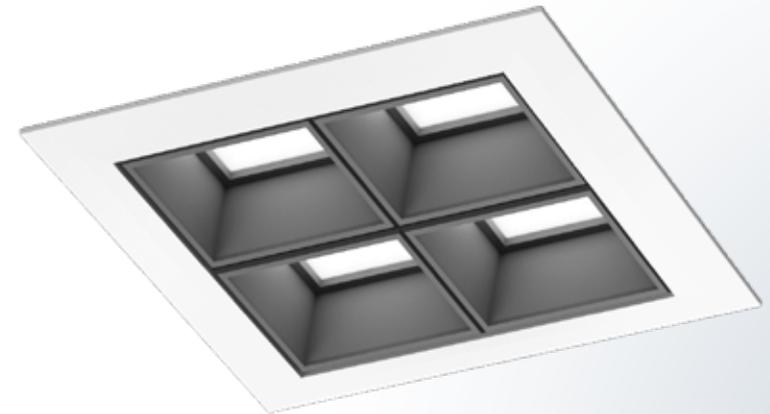


Discreet yet powerful downlights

BalancedCare™ MRI Pixel™ Downlights offer a sleek modern alternative to round recessed downlights. Precision optics deliver glare-free visual comfort. The minimalist look, featuring MikroLite® 1.5, is available in 4- and 8-cell linear forms, as well as 4-cell square forms.

- Linear forms: 1×4 cell (500* lm at 24VDC, 3500K) and 1×8 cell configurations (1000* lm at 24VDC, 3500K)
- Square form: 2×2 cells (500* lm at 24VDC, 3500K)
- 90 CRI
- Three beam spread options: 38°, 55°, 60°
- Efficacy: up to 111 lm/W with black finish
- CCTs: 3000K, 3500K, 4000K, 5000K
- Available in black, white and grey finish

*Typical lumens, absolute value may vary.



MRI Pixel Downlights 2x2 Cell BCPIXMRI22



MRI Pixel Downlights 4-Cell BCPIXMRI14



MRI Pixel Downlights 8-Cell BCPIXMRI18



MRI Beam Recessed

BalancedCare™ offers a timeless architectural alternative to lay-in troffers commonly used for general ambient illumination in MRI applications.



This non-ferrous linear collection supports consistent architectural design throughout the facility to create a balance between aesthetics, visual comfort and lighting performance.

- Lengths: Up to 12' or continuous run
- Recessed batwing, wall wash and graze optics available
- 90 CRI
- CCTs: 3000K, 3500K, 4000K, 5000K
- BCB2RMRI: 750* lm/ft at 24VDC, 3500K;
BCB4RMRI: 850* lm/ft at 24VDC, based on SO Lens at 3500K.
- Choice of aperture widths: 2" (BCB2RMRI) and 4" (BCB4RMRI)

*Typical lumens, absolute value may vary.

Lumens vary with shielding; consult specification sheets.

BCB2RMRI and BCB4RMRI offer design versatility with batwing, wall wash, and graze optic options.



MRI BEAM RECESSED 4" BCB4RMRI

MRI Flexible Ambient

MRI Flexible Ambient provides pleasant ambient illumination through a choice of Lambertian or batwing distributions, ideal in the MRI suite.



Both 1'x1' and 2'x2' configurations feature all-aluminum construction and a removable optical chamber that enables easy access to electrical components for quick maintenance. Flexible Ambient also employs BeWell™ lightguide technology, delivering multiple light distributions for general ambient lighting.

- BeWell™ lightguide ensures uniform distribution without glare, pixelation or shadows
- General diffuse and wide distribution options available for general ambient illumination
- 1' x 1': 2000* lm at 24VDC, 3500K, 2' x 2': 4000* lm at 24VDC, 3500K
- Low-profile design: housing only 4" deep
- 90 CRI
- CCTs: 3000K, 3500K, 4000K, 5000K

*Typical lumens, absolute value may vary.



MRI FLEXIBLE AMBIENT 1' X 1' BCFAMRI11



MRI FLEXIBLE AMBIENT 2' X 2' BCFAMRI22



MRI Sketch® Curved Recessed

Whether surrounding the ceiling in a round, rectangular or arc shape, the BalancedCare™ Sketch® Curved Recessed offers the ability to create soft curves of light, a design feature to promote calm and ease anxiety during procedures.





MRI SKETCH® CURVED RECESSED CIRCLE (BCSKMRI - CIR) SHOWN



The MRI Sketch® Curved Recessed family combines a high-efficiency mixing chamber with spotless high transmission lens to eliminate pixelation on the luminous surfaces. The system consists of curved and straight segments, which can be combined in select arrangements to form sinuous lines of uninterrupted light.

- Partial or complete circles available in 2.5', 12.5', and 22.5' diameters
- Circle sections can be used individually, or connected to create an arc
- Circle sections can be combined with straight sections, in lengths up to 8' or longer system runs, to create rectangles; consult specification sheet
- 90 CRI
- CCTs: 3000K, 3500K, 4000K, 5000K
- Typical lumens: 700 lm/ft at 4000K
- Drywall mounting

Available configurations



MRI SKETCH® CURVED RECESSED BCSKMRI



MRI Undercabinet

The BalancedCare™ MRI Undercabinet luminaire features our signature wafer-thin design, non-ferrous construction and BeWell™ lightguide technology, optimizing lumen output while providing sharp cutoff distribution.



Good things come in small packages. This ultra-thin undercabinet features high-lumen output, excellent uniformity and color rendering, and a smooth surface for easy cleanability.

- Wafer thin - less than 0.5" deep
- Available in 6 lengths: 10", 16", 23", 30", 36", 42"
- Output: Typical 400 lm/ft
- 90 CRI – CCT: 4000K
- White or Black housing finish options
- 24VDC driver located in remote power supply
- Available with interconnect and powercord accessories



MRI UNDERCABINET BCUCMRI



Linking connectors in
6", 12", and 24" lengths



Joiner link for continuous runs



MRI Sconces

BalancedCare™ MRI Sconces provide an added layer of light combining aesthetics, function and flexibility - scalable to any room within the MRI suite, from prep room to scanning room to control room.



These ultra low-profile sconces make MRI lighting more welcoming than institutional. Our lightguide technology delivers low glare, omni-directional ambient light while also providing a soft wash on the surrounding wall.

- Designed with visually comfortable BeWell™ Optics providing ambient lighting and wall glow
- CCTs: 3000K, 3500K, 4000K, 5000K
- Horizontal or vertical orientation, surface mounting
- Available in three lengths: 12", 24" and 36"
- Typical lumens: 600 lm/ft; 90 CRI standard
- Shallow depth (Open Book - 2-3/8", Box - 2", Closed Book - 3-1/8")



MRI BOX
BCSBMRI



MRI CLOSED BOOK
BCSCMRI



MRI OPEN BOOK BCSOMRI



MRI Tranquility Series

The BalancedCare™ Tranquility Series provides flexibility in design, aesthetic appeal, and positive distraction for the patient, visitors and staff alike.



MRI Tranquility Product Offering

Three types of luminous ceiling looks are available: a unique 3D effect, a continuous uninterrupted luminous image, and an elegant regressed skylight, along with decorative sconces, all of which display stunning graphics that support patient and staff comfort through biophilic design.

- Complete family. Unique 3D Drop Lens, Regressed Lens, Overlay Lens and Sconces in multiple sizes to complement any application
- Over 165 high-resolution photographs, designer patterns and pediatric images available
- CCT: 4000K



MRI DROP LENS
BCTQDMRI



MRI REGRESSED LENS
BCTQRMRI



MRI OVERLAY LENS
BCTQGMRI

MRI SCONCES



MRI CLOSED BOOK
BCSCTQMRI



MRI BOX
BCSBTQMRI

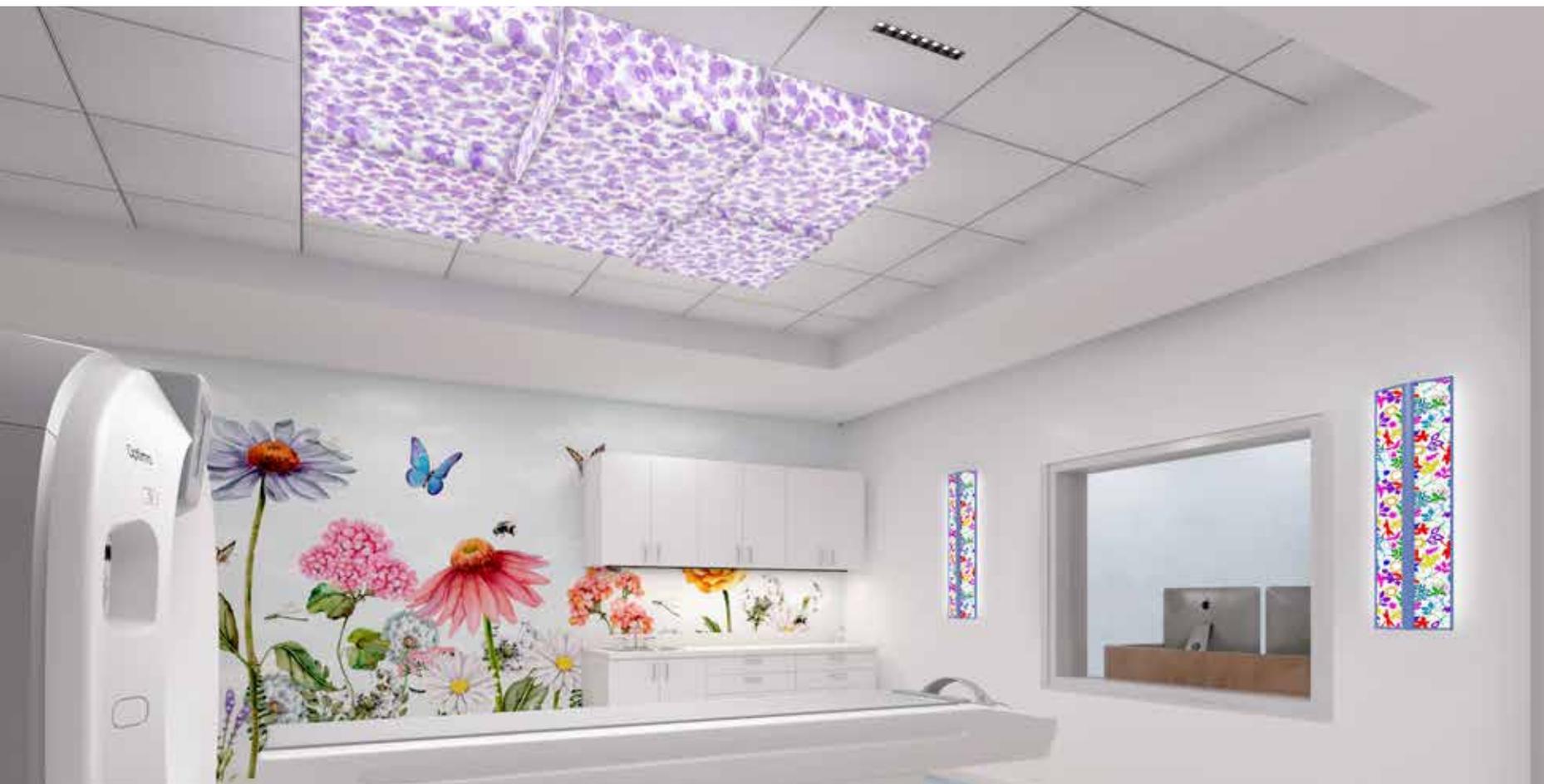


MRI OPEN BOOK
BCSOTQMRI



MRI Tranquility Drop Lens

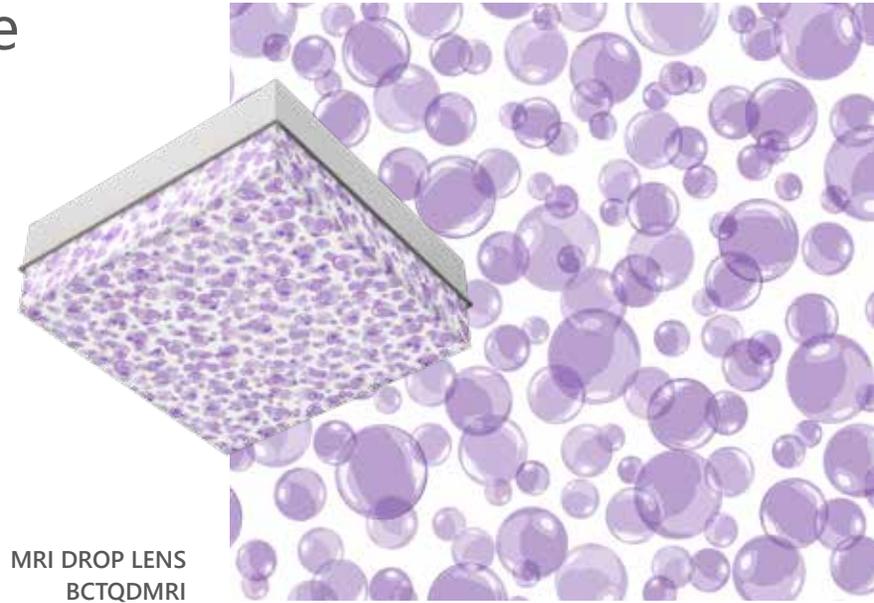
Exclusive 3D optics ideal for creating distinctive luminous ceilings. Drop Lens is unlike any other luminaire in the healthcare sector. With its 2'x2' footprint, crisp corners and uniform glow, it allows stunning luminous ceilings by playing with illuminated volumes. While adding interest to the ceiling line, Drop Lens also adds layers of luminance to adjacent ceilings and walls.



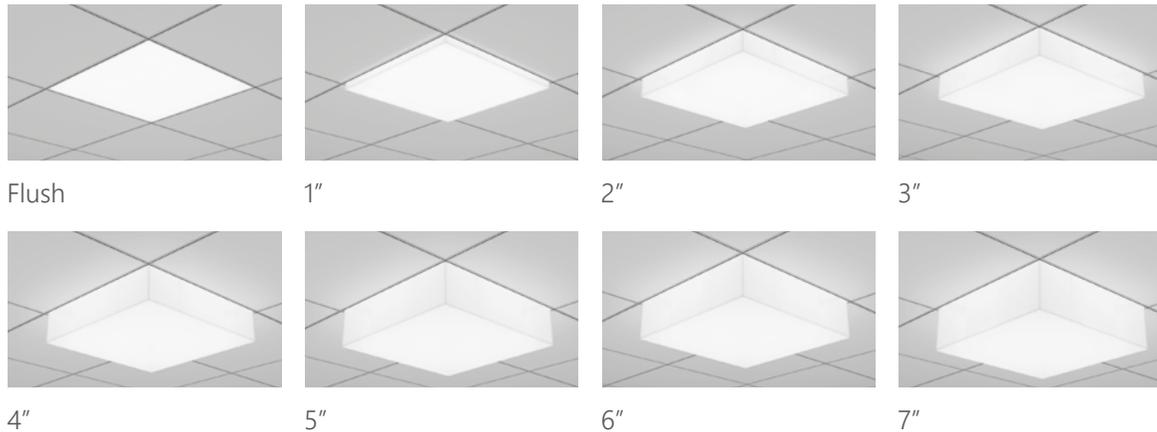
Flexible, playful and made to inspire

Create a 3D ceiling that captivates and inspires. Play with the different lens depths to deliver a fresh, unique approach to the ceiling profile. Tranquility Drop Lens configurations feature wrap-around imagery and a choice of eight lens depths.

- 2'x2'
- Lens depths from flush to 7" in 1" increments
- Recessed housing less than 5" deep
- Lumen output contingent on graphic selection*
- Compatible with 15/16" grid



MRI DROP LENS
BCTQDMRI



Flush

1"

2"

3"

4"

5"

6"

7"

*The addition of Tranquility graphics will reduce output.

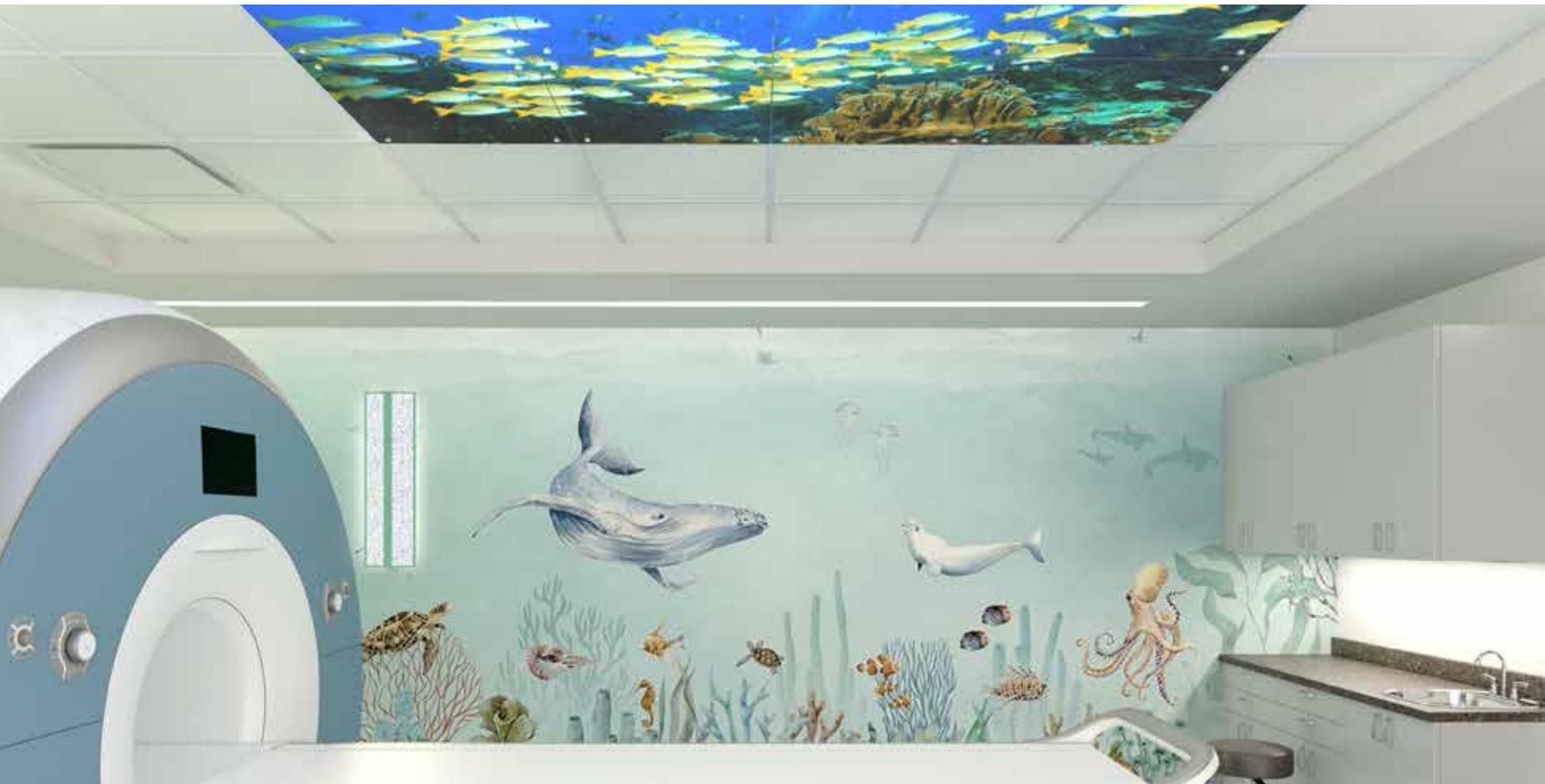
Design Flexibility

The Drop Lens family provides design flexibility, with lens options from flush to 7" depths.



MRI Tranquility Overlay Lens

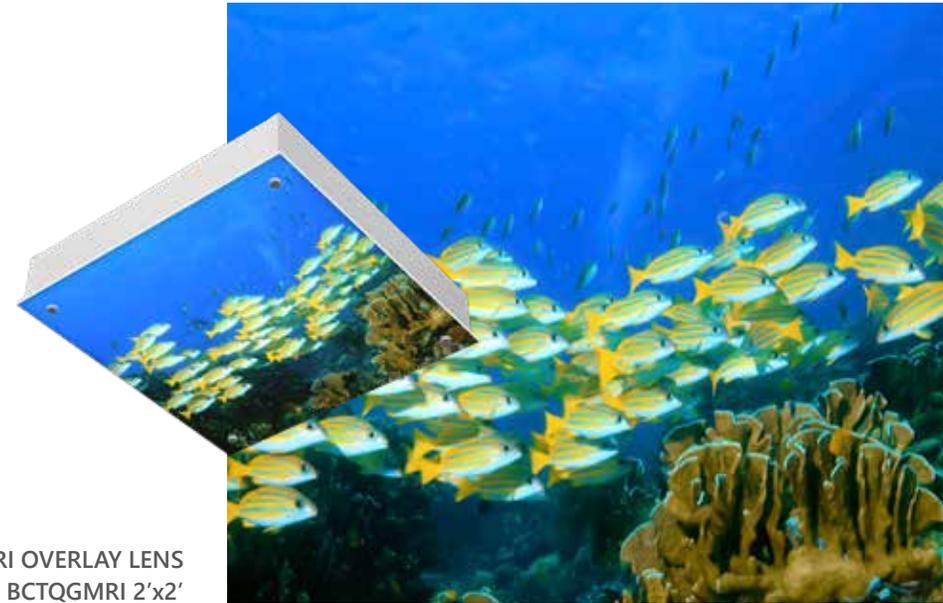
BalancedCare™ Tranquility Overlay Lens lends itself to creating a central luminous ceiling without the interruption of traditional doorframes. Ideal for a scanning room or a waiting room, large-scale graphic images provide much-needed positive distraction and can be scaled up to a 20'x20' configuration.



Seamless ceiling art

With its minimalist square form, flush appearance and uniformly lit diffuser, this Tranquility luminaire features dimmable ambient lighting suited for innovative multi-unit installations.

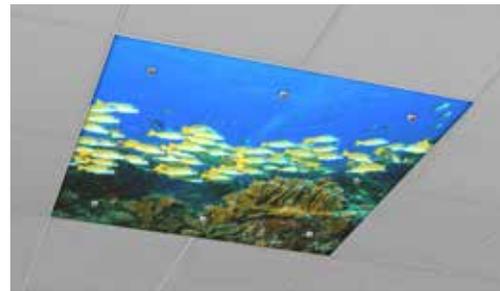
- 2'x2', 4'x4' dimensions
- Recessed housings:
 - 2'x2': 4-5/16" deep
 - 4'x4': 6-1/8" deep
- Lumen output contingent on graphic selection*
- Compatible with 15/16" grid



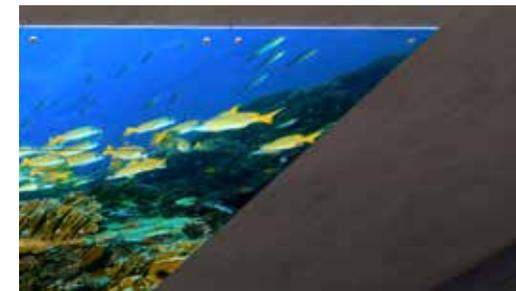
MRI OVERLAY LENS
BCTQGMRI 2'x2'



MRI OVERLAY LENS
BCTQGMRI 2'x2'



MRI OVERLAY LENS
BCTQGMRI 4'x4'



Clean appearance when installed side-by-side, fully concealing T-bars. Decorative fasteners made of brushed aluminum.

*The addition of Tranquility graphics will reduce output.



MRI Tranquility Regressed Lens

Features an elegantly regressed lens that suggests a skylight appearance. Choose from two Regressed Lens footprints to create a uniform look using a single luminaire or by mixing and matching dimensions.



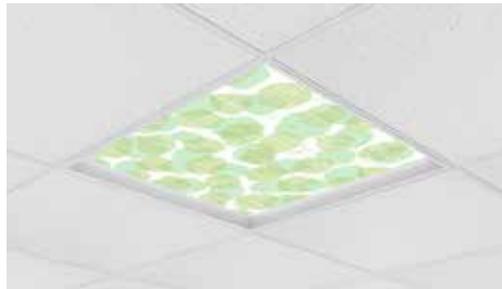
Skylight appearance

When coupled with a beautiful designer pattern, the Tranquility Regressed Lens appears to float in the ceiling.

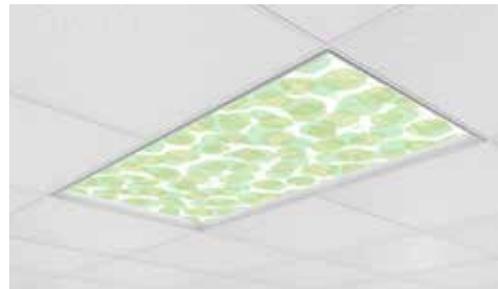
- Evenly diffuse lens ensures balanced luminance and visual comfort
- Easy-to-remove lift'n'shift lens – no visible latches.
- Lumen output contingent on graphic selection*
- Compatible with 15/16" grid



MRI REGRESSED LENS
BCTQRMRI 2'x2'



MRI REGRESSED LENS
BCTQRMRI 2'x2'



MRI REGRESSED LENS
BCTQRMRI 2'x4'

*The addition of Tranquility graphics will reduce output.



MRI Tranquility Sconces

BalancedCare™ MRI Tranquility Sconces can be scaled - from the prep area, to the scanning room to the control room. Subtle graphics can tie in natural elements from the outdoors or playful graphics can be incorporated into pediatric MRI themes.



Creating soft layers of light

With three sizes to choose from, Tranquility Sconces can easily adapt to architectural features. Also, custom colors and wood finishes are available for style matching with Tranquility imagery and the surrounding decor.

- Detachable backplate for quick disconnects
- Horizontal or vertical orientation, surface mounting
- Available in 12", 24" and 36" lengths
- Shallow depth (Open Book - 2-3/8", Box - 2", Closed Book - 3-1/8")
- Lumen output contingent on graphic selection*



MRI BOX SCONCE SHOWN WITH BUTTERFLY
TANGLE PATTERN, PASTEL



MRI BOX
BCSBTQMRI - 12"



MRI OPEN BOOK
BCSOTQMRI - 12"



MRI CLOSED BOOK
BCSCTQMRI - 12"

*The addition of Tranquility graphics will reduce output.



MRI Tranquility Photography

Crisp, clean high-resolution photography offering a choice of over 36 natural scenes integrating biophilic elements to bring the outdoors in.

Sky Scenes



Nature Scenes



MRI Tranquility Designer Patterns

Twelve proprietary designer patterns in a choice of several hues promote health, wellness and comfort. Each pattern is available in six colors or can be customized. They are also designed to be repeatable and scalable for all Tranquility luminaires.



Check



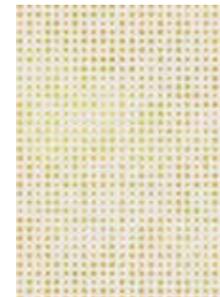
Geo



Mosaic



Starburst



Dotti



Hatched



Linen



Rope



Leaves



Eucalyptus



Meadow



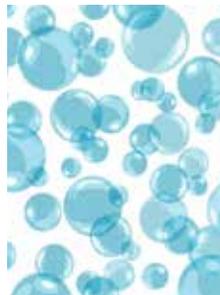
Succulent

MRI Tranquility Pediatric Options

Playful images of butterflies fluttering, bubbles floating, and friendly zoo animals can provide much needed positive distraction. Each pattern is available in six primary or pastel color options or can be customized.



Balloons



Bubbles



Butterfly Tangle



Fiber Dots



Sunshine Square



Fish Tangle



Balloon Cluster



Critter Camp



At Sea

MRI Tranquility Custom Images

In addition to providing a wide variety of high-resolution images, Tranquility MRI luminaires are customizable by integrating client-supplied artwork, including photography, company logos and signage. Use this opportunity to create unique graphic themes, increase brand awareness and transform the visual environment.



CLIENT-SUPPLIED IMAGES

Personalize your space - Add images of local scenes, landmarks or special events that connect people with their surroundings.



LOGO

Highlight your brand - It will enhance the colors of your logo and leave a long lasting impression.



SIGNAGE

Improve wayfinding - Make room numbers easier to see and destinations easier to find by illuminated signage.

* Art supplies must be 150 dpi at 100% image size.



Silent Source™ Technology

The Remote Power Supply (RPS) system designed for MRI Series features Silent Source™. This technology is engineered to meet the stringent requirements of the MRI room, including reduction of Electromagnetic Interference (EMI).

The BalancedCare™ Silent Source™ Difference

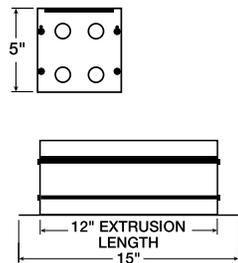
Our RPS houses low-wattage drivers that require smaller filters, which produce less noise and are less expensive than traditional larger filters. All filters are also contained in this specially-designed enclosure. The 0-10V dimming circuit, which runs from the RPS to the control room outside the MRI room, does not require a filter.

Silent Source™ simplifies dimming and maintenance by use of unique analog 0-10V dimming, which happens in the remote enclosure, not in the luminaire. Eliminating use of pulse-width modulation (PWM) allows slow changes in operation vs rapid changes - and that helps minimize ripple current, which, although transient, is another potential 'noise' source. Each 24V output from the RPS enclosure is connected to a required number of EMI filters; and each 0-10V circuit runs from the RPS enclosure to a wall dimmer switch, outside the MRI room.

The RPS enclosure is a non-ferrous, all-aluminum construction. It is available in three sizes:

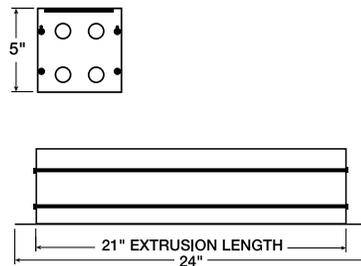
12" (RPSMRI12)

Contains one EMI filtered driver



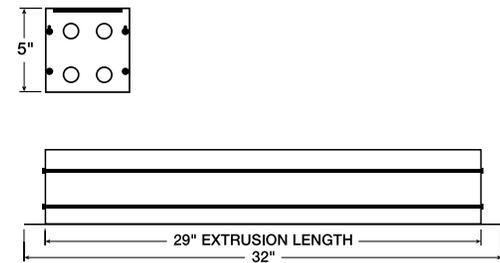
21" (RPSMRI21)

Contains two EMI filtered drivers



29" (RPSMRI29)

Contains three EMI filtered drivers



The Remote Power Supply (RPS) contains design features that, when combined with locating the RPS outside the MRI scanning room, comprise Silent Source™ – a strategy to control EMI.

Drivers

AC/DC 120-277V constant voltage 24V with unique analog 0-10V integrated circuit.

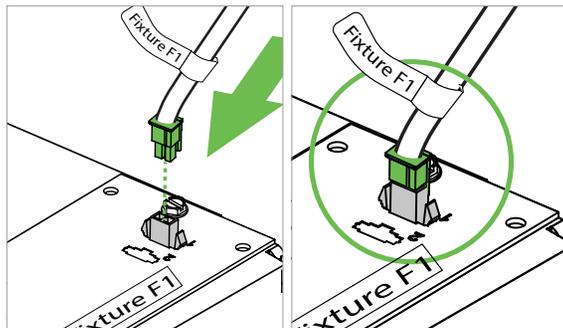
Up to three low-wattage drivers can be combined per RPS enclosure. Additional RPS enclosures can be used to accommodate as many drivers or zones as needed.

The EMI Filter

Designed to reduce electromagnetic noise to comply with MIL-STD-461G, which is a set of testing procedures that is part of the Air Force/Navy Fixed - a Department of Defense Interface Standard for EMI compliance/electromagnetic compatibility. Compliance means the equipment is rated to provide a high level of protection against radiated emissions (RE-102), and conducted emissions (CE-102).

Power Cable

One pre-installed cable (50-foot max. length) runs from an RPS to each luminaire, and both the cable and luminaire plate are labeled with the luminaire type to ensure they are paired correctly. The supplied Molex® quick-connect plug facilitates wiring from cable to luminaire. A cable enclosure within aluminum conduit is recommended for additional EMI shielding purposes, although not required.



Easy to install

Fifty-foot plug-and-play cables run from the RPS to the luminaires for quick installation. Each cable is clearly identified to correspond to its matching luminaire to make installation a snap.

Silent Source™ Technology – a solution made simple

We've simplified the ordering process. Please refer to our online calculator, an easy-to-use tool that helps determine the quantity of Remote Power Supply (RPS) components and their configuration, resulting in a ready-to-use ordering code.

Based on luminaire quantity and fixture lengths, the calculator will determine the total power consumption per dimming circuit. From there, the tool will calculate the total number of filters, drivers and remote power supply boxes needed per dimming circuit.

No more difficult calculations or math equations - we've made configuring the MRI Suite easy.

Sample Layout

Dimming Circuit 1

Controls the Undercabinet and Sketch Curved Recessed Arc luminaires. To calculate requirements for the number of RPS enclosures, the following information was entered in the calculator:

MRI Undercabinet (two luminaires, measuring 30"):

Entered as Quantity 2, Length 2.5' each.

MRI Sketch® Curved Recessed Arc: Quantity 6, Length 4' each.

Pre-installed cables connect luminaires to Circuit #1, RPS1, RPS2 and RPS3.

Dimming Circuit 2

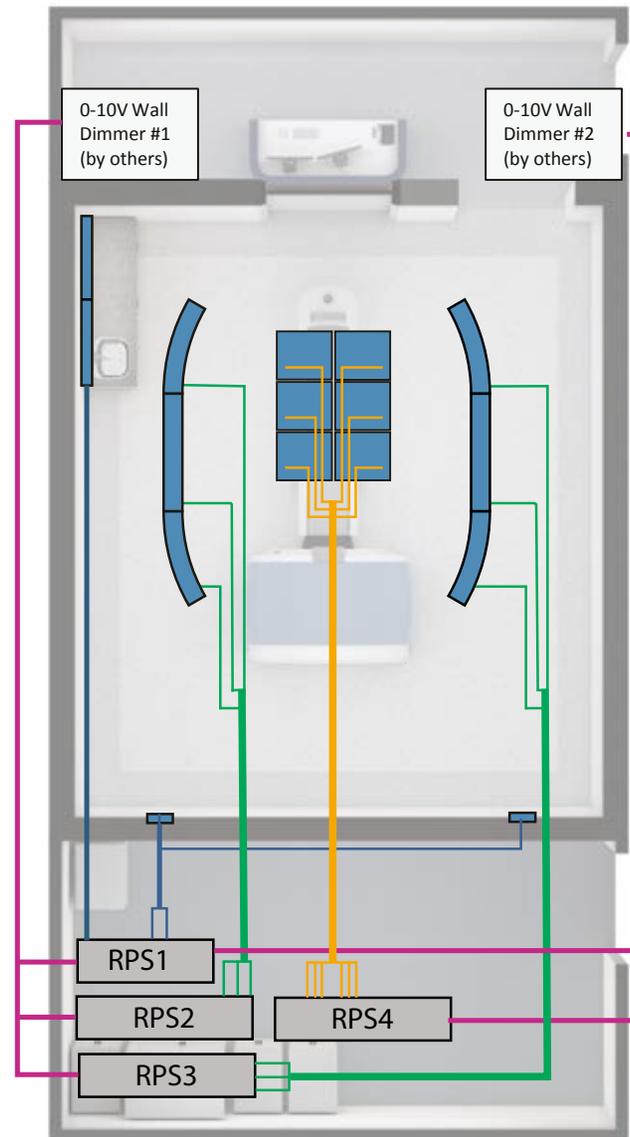
Controls the Tranquility Drop Lens configuration and the Tranquility Closed Book Sconces. To calculate requirements for the number of RPS enclosures, the following information was entered in the calculator:

MRI Tranquility Drop Lens:

Quantity 6 (number of 2x2 luminaires).

MRI Tranquility Closed Book Sconce: Quantity 2, Length 2' each.

Pre-installed cables connect luminaires to Circuit #2, RPS1 and RPS4.



A pre-installed cable connects each luminaire to its respective RPS:
 0-10V connection: cables outside of shielded room

Sample Layout Legend



Look for this Calculator on our website to configure your RPS requirements.

Based on the information entered for each luminaire and dimming circuit, the calculator provides a final ordering code and determines the size of the Remote Power Supply. In this sample layout, one RPSMRI21 and three RPSMRI29 enclosures are required.

Final ordering code provided by calculator, based on the sample layout: DPMRI-11-2-22-RPSMRI21(1) +RPSMRI29(3)

Clients must include the final ordering code in their order.

Total power: 465W

Drivers: 11

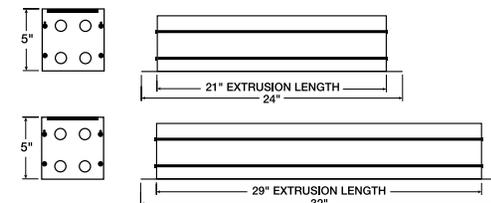
0-10V Circuits: 2

Filters: 22

RPSMRI21: 1

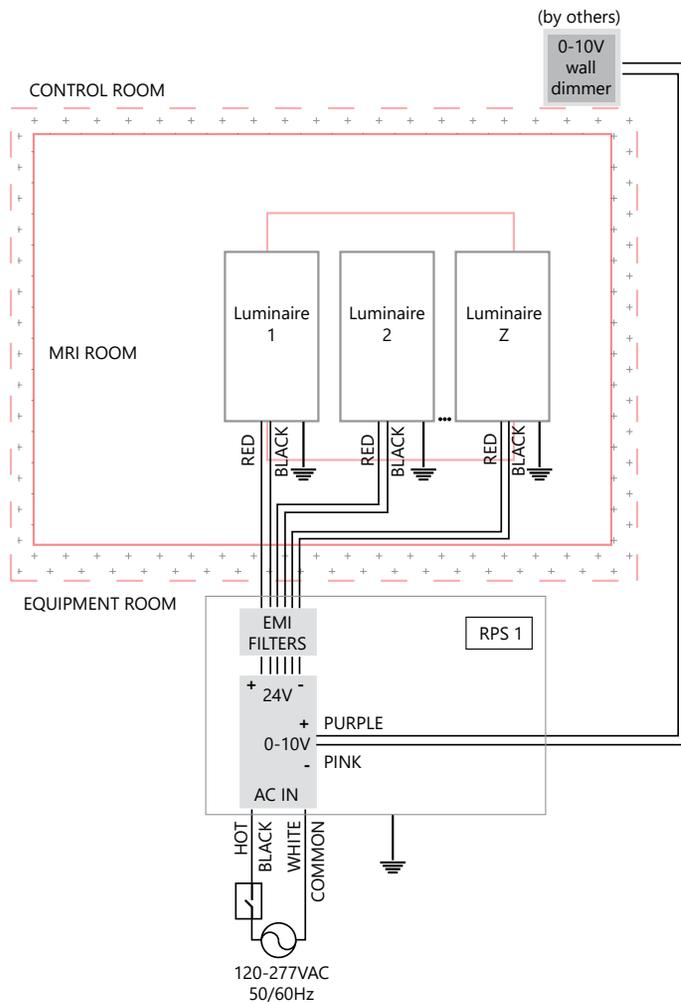
RPSMRI29: 3

Image	Qty	Description/Product Code	Symbol	Circuit
	2	MRI Sketch® Curved Recessed 12' (BCSKMRI)		#1 (RPS2, RPS3)
	2	MRI Undercabinet 30'' (BCUCMRI-30)		#1 (RPS1)
	6	MRI Tranquility Drop Lens 2x2 (BCTQDMRI-22)		#2 (RPS4)
	2	MRI Tranquility Closed Book Sconce 24'' (BCSCTQMRI-24)		#2 (RPS1)

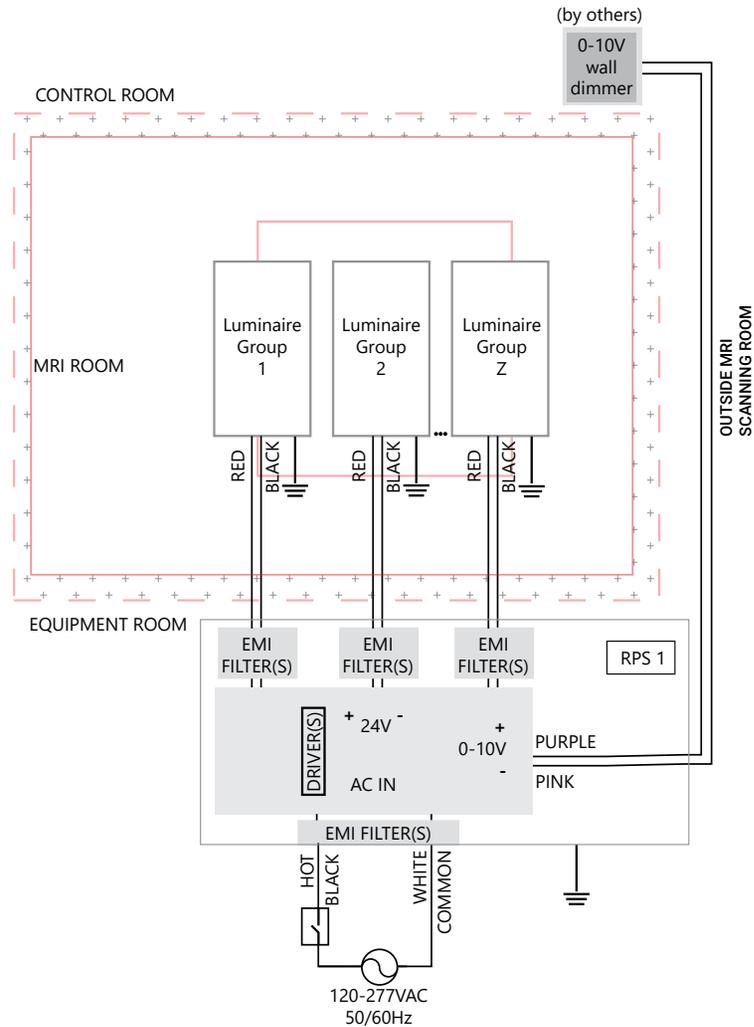


MRI Sample Wiring Diagrams

Single Driver



Multiple Drivers



MRI Luminaire Power Profile

The table below profiles the power required by each MRI Series luminaire. The number of drivers per project is automatically optimized by the RPS calculator tool found on our website... another example of how Silent Source™ technology helps simplify MRI lighting design.

Product Name	Product ID	Luminaire Power
MRI Beam 2 Recessed (SO, BW)	BCB2RMRI	9 W/ft
MRI Beam 2 Recessed (WW, GZ)	BCB2RMRI	5 W/ft
MRI Beam 4 Recessed (SO, BW)	BCB4RMRI	9 W/ft
MRI Beam 4 Recessed (WW, GZ)	BCB4RMRI	5 W/ft
MRI Flexible Ambient 1x1	BCFAMRI11	24 W/unit
MRI Flexible Ambient 2x2	BCFAMRI22	43 W/unit
MRI Pixel™ Downlight 2x2, 1x4	BCPIXMRI	5 W/unit
MRI Pixel™ Downlight 1x8	BCPIXMRI	10 W/unit
MRI Sconce Box	BCSBMRI	8 W/ft
MRI Sconce Closed Book	BCSCMRI	8 W/ft
MRI Sconce Open Book	BCSOMRI	8 W/ft
MRI Sketch® Curved Recessed	BCSKMRI	12 W/ft
MRI Undercabinet	BCUCMRI	5 W/ft
MRI Tranquility Drop Lens 2x2	BCTQDMRI	20 W/unit
MRI Tranquility Overlay Lens 2x2	BCTQGMRI	20 W/unit
MRI Tranquility Overlay Lens 4x4	BCTQGMRI	66 W/unit
MRI Tranquility Regressed Lens 2x2	BCTQRMRI	20 W/unit
MRI Tranquility Regressed Lens 2x4	BCTQRMRI	33 W/unit
MRI Tranquility Sconce Box	BCSBTQMRI	8 W/ft
MRI Tranquility Sconce Closed Book	BCSCTQMRI	8 W/ft
MRI Tranquility Sconce Open Book	BCSOTQMRI	8 W/ft

Listings & Technologies



ADA Compliant — Objects projecting from walls (e.g., sconces) shall protrude no more than 4" into walks, halls, corridors, passageways or aisles when located between 27" and 80" from the ground.



UL/CUL Listed — All BalancedCare™ luminaires have been tested to be in compliance with Underwriter's Laboratory (UL) performance standards. UL is a world leader in product safety testing and certification.



MIL-STD-461G — Military Standards test for both conducted (CE-102) and radiated (RE-102) emissions in a Radio-Frequency (RF) noise controlled laboratory. Products tested to this standard operate within safe frequency range levels with minimal risk of Electromagnetic Interference.



NSF/ANSI2 — Indicates that the luminaire product and labeling has been objectively verified by a trusted third party. The listing signifies that the luminaire has been evaluated for corrosion resistance, cleanability, and the ability of exposed material to withstand normal wear. This demonstrates Axis' commitment to quality, compliance and safety, and supports established infection control standards.



BeWell™ Optics — BeWell is a patent-pending, materials-based lightguide technology that uses molecular optics to direct light. These highly efficient optics are multi-functional, available in direct, indirect, asymmetric distributions or a combination to deliver high-performance, comfortable illumination.



BeWell™ Controls — BeWell Controls takes a systems approach to ensure seamless integration between the luminaires, sensors, control devices and users. It includes all elements of a facility's controls system, supporting Axis' agnostic approach to provide comprehensive systems support.

Why is Military Standard 461G relevant in MRI?

Electrical devices can radiate and conduct electrical noise to other electronics, especially those designed to sense electrical signals. The lighting fixtures are identified as a source of radio frequency (RF) noise, creating interference with other sensitive equipment in the room or artifacts in the scans.

For over a decade, Military Standards have been used to determine whether a luminaire operates within safe levels of Electromagnetic Interference in rooms such as surgical suites and imaging suites. Electronic LED drivers can be a source of unintentional radiated interference. The specific section of the standard - Air Force/Navy Fixed (a Department of Defense Interface Standard for EMI) – addresses both radiated and conducted emissions outlined in RE-102 and CE-102, respectively.

- Radiated Emissions (RE-102) measures the transmitted noise measured at one meter from the fixture using various antennae and in two polarities (vertical and horizontal). Each antenna covers a specific range of frequencies measured across the spectrum from 10 kHz to 18 GHz (See Figure 1).
- Conducted Emissions (CE-102) measures the power leads exiting the fixture across the RF spectrum from 10 kHz to 30 MHz. Measurements are done directly in the conductors (Line and Neutral) to indicate how much noise is emitted through the wires, which might affect other equipment in the vicinity of the device under test (See Figure 2).

This particular section of the standard relates back to aircraft and ships as the equipment is fixed in place (as in an MRI room), and the testing has to be within one meter of the device. This testing correlates the closest with what's happening in these sensitive healthcare environments. If the luminaires can pass these testing requirements, it ensures that they will perform effectively in an MRI suite.

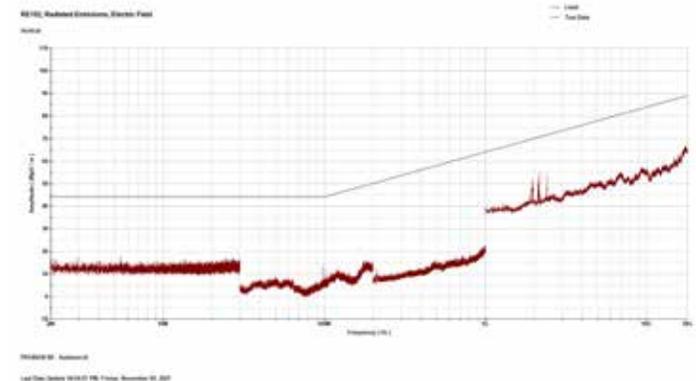


Fig. 1: RE102 Graph of an ambient scan, measuring vertical polarity; illustrates radiated noise measurements tested per MIL-STD-461G; measurements fall below the black limit line for all frequencies, therefore meet the Standard's requirements.

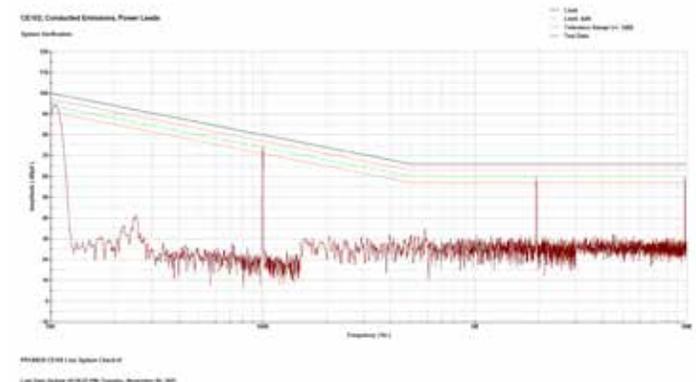
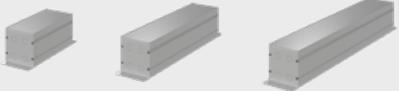


Fig. 2: CE102 System Verification (Line Conductor) - Graph illustrates conducted noise measurements tested per MIL-STD-461G; measurements fall below the black limit line for all frequencies, therefore meet the Standard's requirements.

Product Matrix

Product	Listings	Pages
MRI SERIES		
 <p>MRI PIXEL™ DOWNLIGHTS 4 CELL BCPIXMRI14</p>	 <p>MRI PIXEL™ DOWNLIGHTS 8 CELL BCPIXMRI18</p>	 <p>MRI PIXEL™ DOWNLIGHTS 2X2 CELL BCPIXMRI22</p>
 <p>MRI BEAM 2 RECESSED BCB2RMRI</p>	 <p>MRI BEAM 4 RECESSED BCB4RMRI</p>	
 <p>MRI FLEXIBLE AMBIENT 1X1 BCFAMRI11</p>	 <p>MRI FLEXIBLE AMBIENT 2X2 BCFAMRI22</p>	
 <p>MRI SKETCH® CURVED RECESSED RECTANGLE - CIRCLE - ARC BCSKMRI</p>		
 <p>MRI UNDERCABINET 10", 16", 23", 30", 36", 42" BCUCMRI</p>		
 <p>MRI SCONCE BOX 12", 24", 36" BCSBMRI</p>	 <p>MRI SCONCE CLOSED BOOK 12", 24", 36" BCSCMRI</p>	 <p>MRI SCONCE OPEN BOOK 12", 24", 36" BCSOMRI</p>
 <p>REMOTE POWER SUPPLY MRI 12", 21", 29" RPSMRI</p>		

Product	Listings	Pages
MRI TRANQUILITY SERIES		
 <p>MRI TRANQUILITY DROP LENS 2X2 BCTQDMRI</p>	   	9, 24, 25, 26, 27
 <p>MRI TRANQUILITY OVERLAY LENS 2X2, 4X4 BCTQGMRI</p>	   	9, 25, 28, 29
 <p>MRI TRANQUILITY REGRESSED LENS 2X2, 2X4 BCTQRMRI</p>	   	9, 25, 30, 31
 <p>MRI TRANQUILITY SCONCE BOX 12", 24", 36" BCTQSBMRI</p>	   	9, 25, 32, 33, 37
 <p>MRI TRANQUILITY SCONCE CLOSED BOOK 12", 24", 36" BCTQSCMRI</p>	   	9, 25, 32, 33
 <p>MRI TRANQUILITY SCONCE OPEN BOOK 12", 24", 36" BCTQSOMRI</p>	   	9, 25, 32, 33





Form meeting function
– it's in our DNA.

Since our founding in 1991, Axis Lighting has always been a family-owned company, with an emphasis on people. Our diversity translates into architectural designs that transcend the ordinary and performance that exceeds the norm. We've taken our balanced approach to lighting into the healthcare market to provide solutions that not only function properly, but also provide beautiful, timeless design for all users of the space.

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