

Sunnex MedicalLight®

INSTALLATION AND SERVICE MANUAL



PF Series
MRI

www.sunnex.com

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1. SHIPPING CARTON & CONTENTS

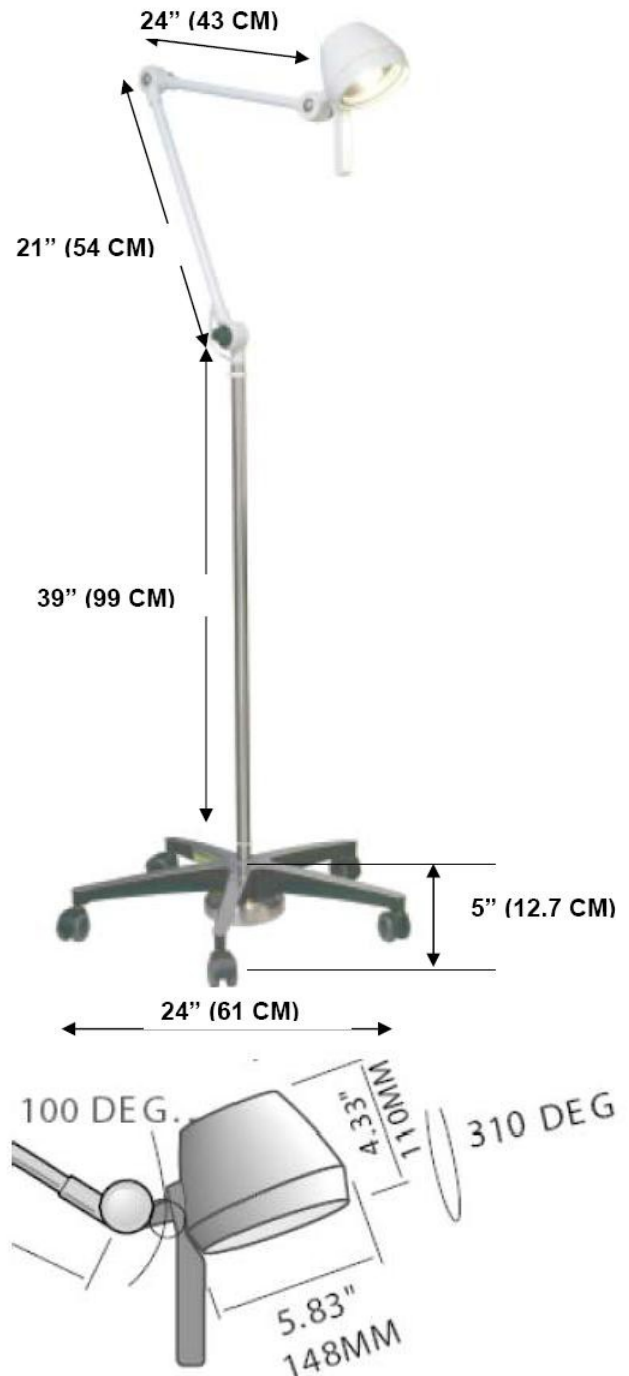
PF28016-M (mobile)

One lamp arm assembly with 30 feet cord and connector
 One caster base with 5 wheels
 One base weight with 5/16-18 x 2 ½ socket head cap screw
 One vertical pole with set screw
 One electrical box with lead and cord plug
 Two Allen keys; 3/32 and 6mm (the keys are magnetic)
 Two cord hooks (off-white) to hold output cord to the pole
 A combination of installation guide/instruction manual

The electrical box is packaged and shipped with the light.

*Carefully check the contents of the shipment. Report shortages and/or errors, to Sunnex or your dealer's customer service department, within five (5) working days.

The recovery of costs related to shipping damage, concealed or otherwise, can be a long and frustrating experience. In order to avoid the uncomfortable aspects, all freight claims by either the dealer or consignee should be filed with the transportation company within five (5) working days. The carton and its inserts should be kept for inspection by the transportation company.



CAUTION: Please be aware, if this routine is not followed, and the carton and its contents are disposed of or destroyed before inspection by the transportation company, our assistance is of no value to you.

2. INTRODUCTION

The objective of this manual is to assist you in assembling your PF series MRI light, to introduce some of its most important features, and to provide suggestions for its care.

2.1 INTENDED USE

The Sunnex PF series MRI light is intended for use in MRI environments where illumination is required for various tasks around the bore. **CAUTION! This light is intended for out of bore procedures only. Any deviation or inappropriate use may result in serious injury.**

2.2 SAFETY INSTRUCTIONS

The Sunnex PF series MRI light must be operated with the safety of the user and patient in mind. Please read this manual and any other instructions before installing the equipment. Please make sure that all appropriate service staff is informed and educated on the equipment to ensure continued safety and needed maintenance. Be sure you understand the intended use of this equipment and recommended operation before attempting to install and use the equipment.

IMPORTANT!

This light is MRI conditional and can be used as a medical task light around the bore. NOTE! It is extremely important that all guidelines are strictly followed to ensure safety for users and patients.

Use the light only for its intended purpose. It is a portable medical task light intended for use outside of the bore.

WARNING! The power supply contains ferrous materials. DO NOT bring the power supply close to the magnet (Always keep it beyond 100 Gauss line/10 mT). **Fuses may blow if this requirement is not followed. ALWAYS take the furthest route away from the magnet when moving the power supply in the MRI room.**

The power supply must be fastened to a fixed structure.

ALWAYS bring the light outside the MRI room when performing any service on the light. This includes any cleaning and/or bulb replacements. Also, assemble the light outside of the MRI room. The safety guidelines of your MRI facility must **never** be compromised. If in doubt, consult with your facilities manager on proper procedures.

3. PF Series MRI Specifications

3.1 TECHNICAL DATA

Power supply:	120V - 60Hz and 230V - 50Hz
Nominal Effect:	120Vac, 60Hz, 50W - 1.5A 230Vac, 50Hz, 50W - 1.0A
Light Source:	Halogen bulb - Dichroic 13.8V/50W
Bulb Life:	2,000 hours
Central Illuminance	19300 Lux Lux/2,350 footcandles at 1 meter
Total Irradiance	131 Watts/m ²
Color Temp:	3,420K
Color Rendering Index:	97
Total Weight:	Mobile 40 lbs / 18 kg

The product is rated as class I according to electrical safety standards IEC 60601-1 and conforms to CAN/CSA-C22.2 No. 601.1-M-90, IEC/EN 60601-1:1990, IEC 60601-2-41: 2000, UL 60601-1, First edition, 2003. This product is rated as a Class I medical device according to USA FDA regulations; mode of operation is suited for continuous use. Radiated and conducted emissions testing has been completed on the PF Series lights and for compliance with IEC 60601-1-2 (2001-09) 2nd edition (EN55011:1991, Group I Class B)

This product does not produce any physiological effects that could harm a patient. The mains plug on the product is a disconnect device, a mains switch is not provided.

This product is not suitable for use in the presence of a **FLAMMABLE ANAESTHETIC MIXTURE WITH AIR** or **WITH OXYGEN OR NITROUS OXIDE**.



Information about circuit diagrams, component part lists, descriptions, is available upon request. Requests can be made to engineering department.

Technical Questions

Any technical questions can be directed to Sunnex Inc. phone +1 800 445 7869 or can be written to Sunnex Inc. Engineering Department, 8001 Tower Point Drive, Charlotte, NC. 28227.

3.2 EMC COMPATIBILITY

Sunnex Inc.

Electromagnetic Compatibility User Information for the PF MRI Light (PF 28016-M)

WARNING: Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the Electromagnetic Compatibility [EMC] information provided in the accompanying documents provided in the Appendix.

WARNING: Portable and Mobile RF Communications Equipment can affect Medical Electrical Equipment.

WARNING: The equipment or system should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation in the configuration in which it will be used.

NOTE: The EMC tables and other guidelines that are included in the Instruction Manual provide information to the customer or user that is essential in determining the suitability of the Equipment or System for the Electromagnetic Environment of use, and in managing the Electromagnetic Environment of use to permit the Equipment or System to perform its intended use without disturbing other Equipment and Systems or non-medical electrical equipment.

To avoid electromagnetic interference, guidelines in this instructions manual and guidelines of MRI **MUST** be strictly followed.

3.3 TRANSPORTATION AND STORAGE

This light is packaged in card board and should be transported protected from moisture. The light should be stored in a dry environment and room temperature.

Transportation and storage temperature: -5°F / -20°C to 140°F / 60°C

Humidity < 95%

4. ASSEMBLY INSTRUCTIONS

There are several factors involved with proper installation. Considering them will help you produce a safe work environment for yourself and your patients.

Please follow the directions for assembly carefully as any negligence or poorly performed assembly may void the Warranty. Any modification to the structure of the light may also void the listings of this product.

4.1 PF SERIES MRI MOBILE - PF28016-M



CAUTION! THE ELECTRICAL BOX CONTAINS FERROUS MATERIALS AND MUST BE HANDLED WITH CAUTION. THE ELECTRICAL BOX SHOULD BE SECURED TO A STRUCTURAL MEMBER AT A SAFE DISTANCE (BEYOND 100 GAUSS LINE) AWAY FROM THE MRI MACHINERY. DO NOT MOUNT BOX DIRECTLY TO SHEET ROCK OR PLYWOOD SUBSTRATES. IDEALLY, THE ELECTRICAL BOX IS SECURED BY NON-FERROUS FASTENERS, DIRECTLY TO THE FLOOR OUTSIDE THE MAXIMUM RECOMMENDED GAUSS LINE.

It is recommended the electrical box is mounted away from high traffic area and congestion to avoid the possibility of damage or removal from mounting surface.

Assembly and installation of the light

IMPORTANT! Assemble the light outside of the MRI room.

1. Snap in five wheels onto caster base. It may be necessary to expand the brass clip with a screwdriver to fit the wheel in caster base (See figure 1). Take 5/16 -18 bolt (provided) and position bolt up through the weight and bottom of caster base. Attach caster base and weight to pole by threading screw into the bottom of the pole. Ensure that the weight, caster and vertical pole are attached properly.

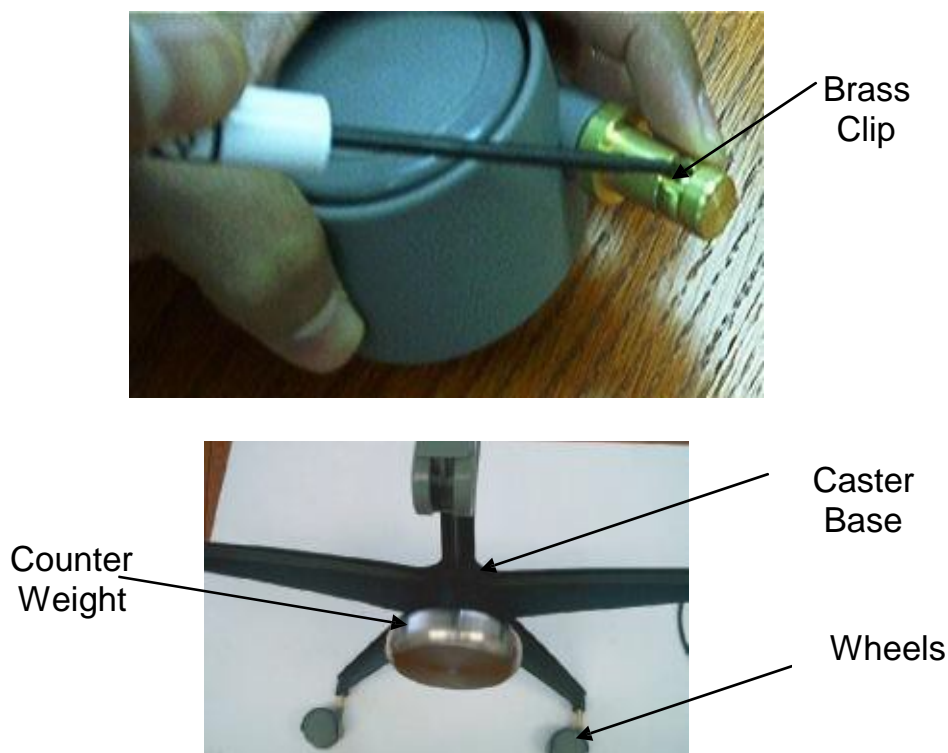


Figure 1. Installing counter weight to the caster base

2. Place lamp arm assembly into top of pole and secure in position with the set screw provided in the side of the pole.

ELECTRICAL CONNECTIONS

Option 1 – Installing the transformer box outside MRI room using RF filter

If the transformer box is installed outside MRI room, the output cord from transformer box must be cut and fed through a RF filter; otherwise there may

be interference with the MRI machine. (CUTTING THE CORD IN SUCH A WAY DOES NOT VOID THE WARRANTY OF THE PRODUCT AND DOES NOT VOID THE CERTIFICATION LISTING)

The transformer box is equipped with 30ft of cord on the secondary side and 10ft of cord on the primary side. If installing the transformer box outside the MRI room, connectors may be required on the secondary side to accommodate the use of an RF filter. RF filter connectors will be different based on which RF filter is used. If your facility construction requires alterations beyond these guidelines, please contact Sunnex Technical Support.

WHICH RF FILTER TO USE

PF MRI LIGHT specifications:

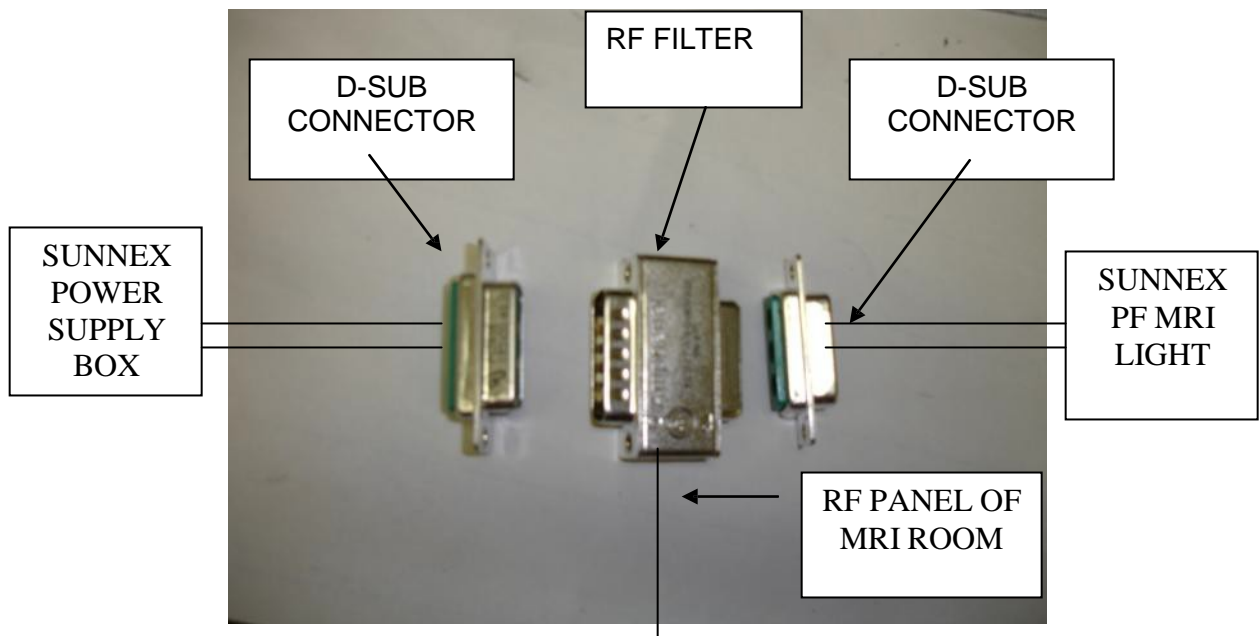
Power Supply:	120V - 60Hz and 230V - 50Hz
Nominal Effect:	120VAC, 60Hz, 1x50W - 1.5A 230VAC, 50Hz, 1x50W - 1.0A
Voltage output:	14V DC
Current:	3.6 Amp. DC in secondary

Sunnex does not advise any specific filter but the specifications of the PF MRI product must be carefully considered when selecting a filter. Following are recommendations of filters that can be used: Spectrum Control part# 56-705-003 (this is a 9-pin D sub connector RF filter) or equivalent should be used. Some manufacturers that make RF filters are: Amphenol Canada, Spectrum Control, ERNI, Conec. The voltage drop over the filter must be minimal to ensure proper performance of the light fixture. The guidelines and requirements of your MRI facility must be considered as well. Consult with your MRI facility manager or the RF panel support technician if uncertain.

1. Mount transformer box securely to a structural member in the area close to the RF panel in the adjacent equipment room using 1/4 X 2ll bolts (Four holes are provided on the base plate of transformer box). The transformer box should not be stacked with other power supply units.
2. It is recommended not to mount the transformer box on wall.
3. Velcro is provided on the base plate of the transformer box and a rope and snap-on hook is also provided on the transformer box to assist in proper installation. (Velcro can be used [in addition to bolting method] to

secure the transformer box to a flat surface and snap-on hook is provided to emphasize that the transformer box needs to be location-constrained and it can be used to secure the transformer box).

4. Select appropriate mating D sub connectors for RF filter. Cut the cord on secondary side of the light, install (solder) two wires of this cord (black = hot, white = neutral) to the selected D sub connector and install this connector to the RF filter. (CUTTING THE CORD IN SUCH A WAY DOES NOT VOID THE WARRANTY OF THE PRODUCT AND DOES NOT VOID THE CERTIFICATION LISTING). Install (solder) wires of other end of lamp cord to the selected D sub connector for inside of the MRI room and install this connector to the RF filter from inside the MRI room. (Sunnex Inc. does not provide RF filters or the mating D sub connectors to RF filter). Sunnex Inc. can provide the output cord (Sunnex part# 50710030) or 18AWG/2 wire, temperature rating 105 degree C should be used. A typical installation is shown in following diagram. A 3-pin, 9-pin, 25-pin D Sub connector can be used.



5. Plug male connector (from lamp cord) into the female connector on the electrical box. **CAUTION:** Male connector has a mechanical latch. Be sure lamp connector is fully engaged into electrical box female connector and the latch is fully engaged. (To disconnect, press tab on the female connector [and hold] and pull the male connector.)

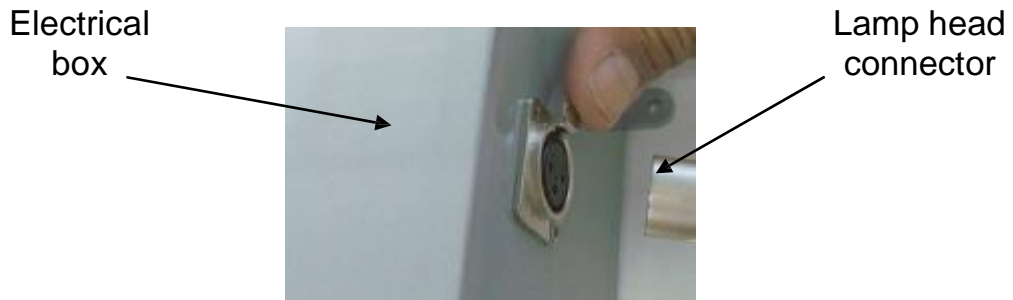


Figure 2. Lamp connection with electrical box

CAUTION	<ol style="list-style-type: none"> 1. IN CASE YOU NEED TO DETACH MALE CONNECTOR FROM FEMALE CONNECTOR OF POWER SUPPLY, YOU MUST FIRST —PUSH ON THE TAB OF FEMALE CONNECTOR AND THEN PULL THE MALE CONNECTOR OUT. 2. PULLING THE MALE CONNECTOR FIRST, WITHOUT —PUSHING THE TAB ON FEMALE CONNECTOR MAY MAKE THE CONNECTION TIGHT. 3. IF THE CONNECTION FEELS TIGHT, [1] PRESS ON THE MALE CONNECTOR FIRST, [2] —PUSH ON THE TAB OF FEMALE CONNECTOR AND HOLD [3] PULL THE MALE CONNECTOR OUT.
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6. Confirm connection through the RF panel into the light fixture in the MRI room.
7. Plug electrical box lead into a hospital grade electrical socket.
8. Lamp is ready for use.

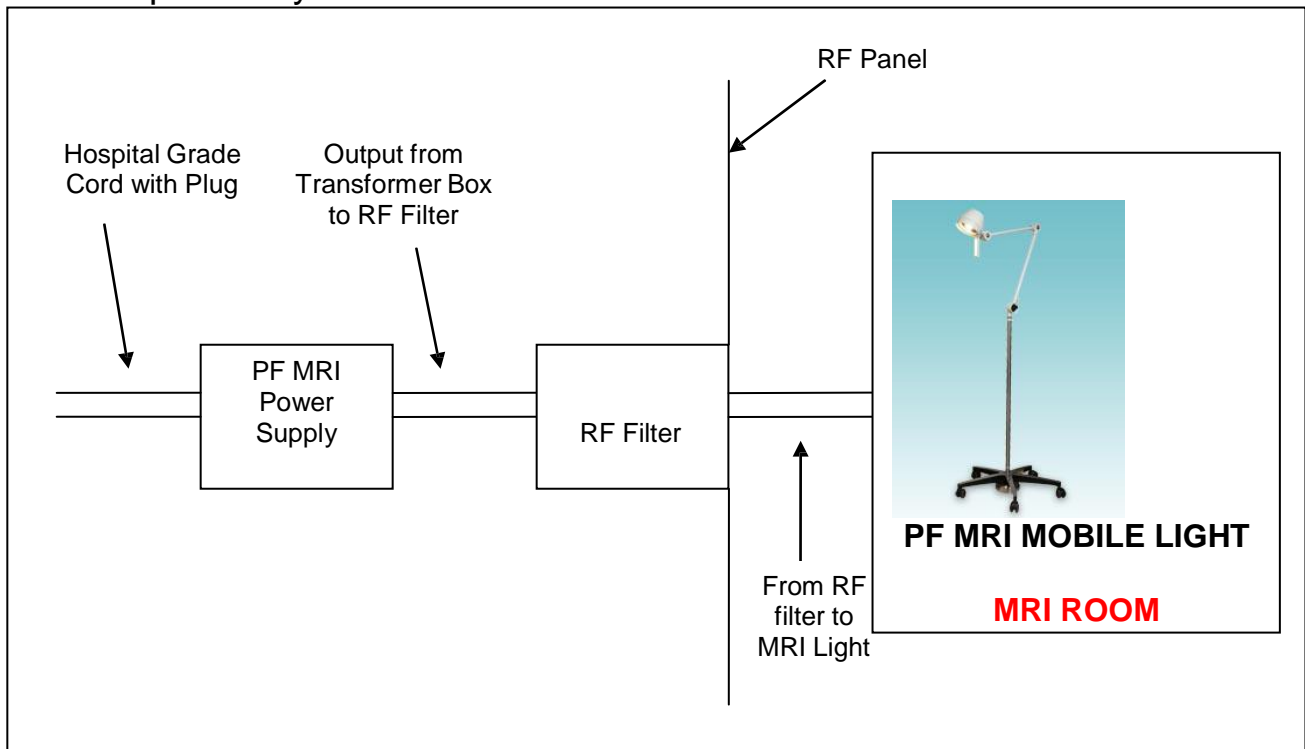


Figure 3. Schematic for option 1 (Installing the transformer box outside MRI room using RF filter)

Option 2 – Installing the transformer box inside the MRI room.

The light is equipped with 30ft of cord on the secondary side and 10ft of cord on the primary side. The total length of cord on the secondary side should not be altered from the original 30ft.

1. Mount electrical box securely to a structural member on the floor outside of the safe perimeter (100 Gauss line/10mT) of MRI machinery with a bolt 1/2" diameter x 2" L. (Four holes are provided on the base plate of transformer box).
2. It is recommended not to mount the electrical box on wall.
3. Velcro is provided on the base plate of the electrical box and a rope and snap-on hook is provided on the electrical box to assist in proper installation.
4. Plug lamp lead connector into the receptacle on the side of the electrical box. **CAUTION:** Lamp lead connector has a mechanical latch. Be sure lamp connector is fully engaged into electrical box receptacle and the latch is fully engaged. (To disconnect, press lever on the receptacle and pull the lamp head connector.)



Figure 4. Lamp lead connection with electrical box

5. Plug electrical box lead into a hospital grade electrical socket.
6. Lamp is ready for use.



CAUTION! THE ELECTRICAL BOX CONTAINS FERROUS MATERIALS AND MUST BE HANDLED WITH CAUTION. THE TRANSFORMER BOX SHOULD BE SECURED TO A STRUCTURAL MEMBER AT A SAFE

DISTANCE (100 GAUSS LINE) AWAY FROM THE MRI MACHINERY. DO NOT MOUNT BOX DIRECTLY TO SHEET ROCK OR PLYWOOD SUBSTRATES. IDEALLY, THE TRANSFORMER BOX IS SECURED BY NON-FERROUS FASTENERS, DIRECTLY TO THE FLOOR/CEILING OUTSIDE THE MAXIMUM RECOMMENDED GAUSS LINE.

5. OPERATING INSTRUCTIONS

While this light is MRI compatible and can be used as a medical task light around the bore, it is **extremely** important that all guidelines are strictly followed to ensure safety for users and patients.

This light is only intended for use outside of the bore

This product is not suitable for use in the presence of a FLAMMABLE ANAESTHETIC MIXTURE WITH AIR or WITH OXYGEN OR NITROUS OXIDE.

The installation guidelines must be strictly followed. The electrical box contains ferrous materials and must **NEVER** be placed close to the magnet. If the electrical box is moved closer to the magnet at 100 gauss line, electromagnetic interference may be seen, to avoid this **NEVER** move the electrical box close to the magnet.

NEVER operate the light while the electrical box is unsecured.

The lamp may slightly vibrate during its operation, but it is absolutely normal to the operation of the light.

It is recommended that the light be operated 3 feet away from the bore of the magnet, if the light is operated at the bore, it may reduce the bulb life.

1. Position the light fixture conveniently to illuminate the target area
2. Position the lamp arm by adjusting the handles on the joints. The lamp arm assembly has three knobs to adjust the position of the light. Once a desired position is selected, tighten the three knobs properly to make the light stable. The lamp head can be moved 315 degrees using the handle on the lamp head.
3. Verify that the power cord is connected to the electrical box and the electrical box is powered from the receptacle.
4. Turn on light

The ON/OFF switch should be used to turn the light on and off. It is located at the back side of the lamp head.

When light is not in use, turn it off, also unplug the hospital grade plug from the hospital grade socket when light is not in use. A mains switch is not provided on the electrical box.

The PF series light, being a mobile light can be moved on its wheels by holding the vertical light pole. Before moving the light, ensure that all lamp arm joints are tightened properly.

CAUTION ! The electrical box is specifically made to run the PF series MRI light (PF 28016-M) in an MRI environment. A power supply different than this should **NEVER** be used to operate the light.

CAUTION! The caster base is weighted for stability, but the arm should not be locked in a fully extended horizontal position as this may compromise the stability of the fixture.

6. SERVICE AND MAINTENANCE

While your PF SERIES MRI light has been designed to provide you many hours of professional performance, it will benefit from your periodic care and concern. Your MRI facility guidelines must be **strictly** followed at all times. Please consult with your facility manager.

Detachable parts

Lamp head: lens cover, lens, O-ring, lens cover screws, bulb

Light assembly: light pole, light arm, caster base, caster wheels, counter weight

Electrical box: light cord connector and electrical box receptacle

CAUTION! In the event, parts need to be replaced, only Sunnex parts should be used as replacements, use of other parts or materials can degrade safety. Also, there are no user-serviceable parts in the PF series MRI light. The product should be returned to Sunnex in case service is required.

6.1 CLEANING AND DISINFECTION



CAUTION! ALWAYS BRING THE LIGHT OUT OF THE MRI ROOM PRIOR TO CLEANING OR DISINFECTING. TAKE THE FURTHEST ROUTE AWAY FROM THE MAGNET WHEN REMOVING THE LIGHT AND ITS POWER SUPPLY FROM THE MRI ROOM!



CAUTION! ALWAYS SHUT OFF THE LIGHT AND LET COOL BEFORE PERFORMING ANY CLEANING.

The lamp fixture can be cleaned as needed with a damp cloth and a mild detergent. For disinfection use a soft cloth with a disinfectant solution such as isopropyl alcohol. NOTE! Do not introduce any fluids to the inside of the lamp head as this could cause a fire hazard. The glass lens can be cleaned with any commercial glass cleaner.



CAUTION! DO NOT USE EXCESSIVE AMOUNTS OF ANY FLUID WHEN CLEANING. DO NOT INTRODUCE ANY FLUIDS TO THE INSIDE OF THE LAMP HEAD HOUSING.

Frequency of cleaning and maintenance: A suggested frequency for cleaning and maintenance is two months.

6.2 BULB REPLACEMENT INSTRUCTIONS PF LIGHT (PF28016-M)

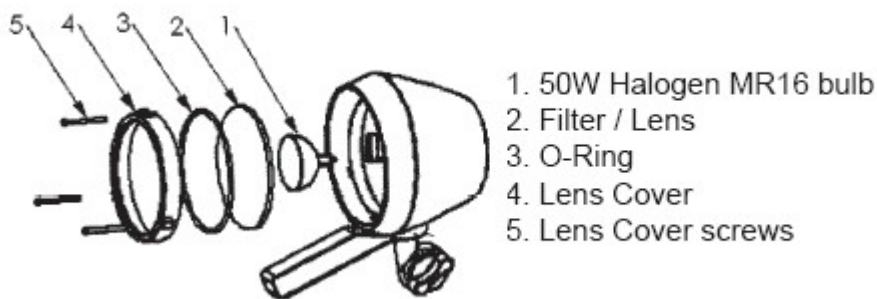


Figure 3. Bulb Replacement

It is recommended that bulb replacement be done outside the MRI room. MRI facility guidelines must be strictly followed during the use of tools to replace bulb.

1. Unplug lamp from power source and **wait at least one hour** for lamp to cool.
2. Remove the three small screws (5) and remove the lens (2), o-ring (3) and lens cover (4).
3. Grip bulb (1) and firmly pull straight out from the bulb socket on the lamp back
4. Align the pins of the new bulb with the pin holes in the bulb socket and firmly push the new bulb straight into socket. **Note! Do not touch the halogen bulb with bare fingers as dirt and oil from hands could cause a fire hazard.**
5. Reposition lampshade and components on lamp back. Position the bulb retainer that holds the bulb such that it holds the bulb properly. Align the three screw holes in the lamp back and shade. Reinstall the three screws and securely tighten them.

Bulb specifications: Osram EPZ NAED 54743, 50W, 13.8V, GX5.3

CAUTION! Use specified bulb only as the replacement, the power supply is developed to operate the specified bulb. Any deviation from using this bulb may cause the light to not operate properly.

CAUTION! Be sure the lampshade components are properly seated when screws are tightened!

6.3 FUSE REPLACEMENT INSTRUCTIONS PF LIGHT (PF28016-M)

1. Locate fuse holders (2) on the side of the electrical box. Push the fuse holder while turning it counter clockwise and remove the fuse holder from the fuse block by pulling it out.
2. Replace fuse with proper replacement fuse.
Fuse Replacement Specifications:
USA : 250V, 2A, Interpower Products – 813MDA-2
Europe: 250V, 1.25A, Interpower Products – 813MDA-1.25
3. Follow procedure in reverse to return lamp to operating condition.

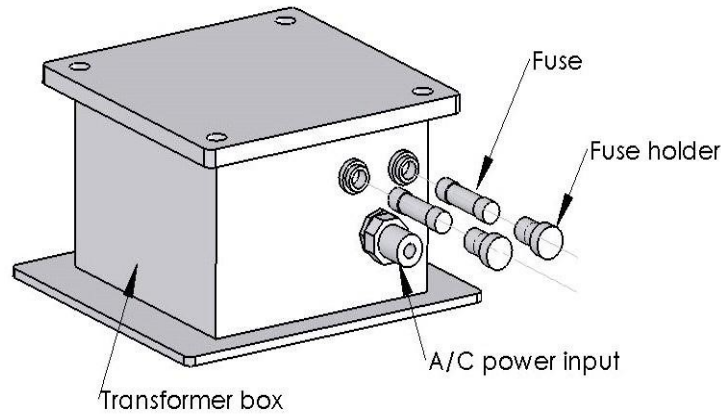


Figure 4. Fuse Replacement

6.4 PREVENTIVE INSPECTION AND MAINTENANCE

Lens in lamp head to be inspected once a month for cleanliness.

6.5 DISPOSAL OF PARTS

Bulbs/fuses: Bulbs and fuses go in normal waste. All glass parts go in normal waste.

Plastic parts: Plastic parts are to be put in recycling bins.

Transformer box: Electrical and electronic components are to be put in electrical and electronic waste.

Metal parts: Metal parts go in metal waste.






Risks associated with disposal of parts: To minimize risks associated with disposing parts, care should be taken to avoid cuts when dismantling bulbs, glass lens and other glass parts.





While disposing parts and/or product, information on local, state, federal, or country requirements need to be met.

7. MARKINGS

7.1 SYMBOLS


On/Off Switch Symbols	Caution Symbol	Protective earth terminal symbol	This product must be sorted as Waste from Electrical and Electronic Equipment (WEEE)
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ON	OFF	Consult User Guide	Protective Earth Terminal	WEEE


Fuse Symbol	Alternating Current Symbol	Direct Current Symbol	Hot Surface Symbol
			
Fuse	A/C	DC	Hot Surface

7.2 WARNING STATEMENTS AND LABELS


On lamp head






	CAUTION!	ATTENTION!
	HOT SURFACE	SURFACE CHAUDE
CAUTION! LAMP TO BE OPERATED OUTSIDE THE BORE OF MRI MAGNET		
ATTENTION! LA LAMPE DOIT FONCTIONNER UNIQUEMENT EN DEHORS DU CHAMPS MAGNÉTIQUE DE D'IRM		

On electrical box








	CAUTION!
THIS POWER SUPPLY IS MAGNETIC	
THIS POWER SUPPLY MUST BE KEPT BEYOND 100 GAUSS LINE OF MRI MAGNET	
CE TRANSFORMATEUR EST FERRO-MAGNÉTIQUE.	
CE TRANSFORMATEUR, DOIT SE TROUVER EN DEHORS DE LIGNES DES 100 GAUSS EST DU CHAMPS MAGNÉTIQUE DE D'IRM	

For 120V

Sunnex	CE	INPUT 120V 
MODEL PF 28016-M		Hz 60
S/N		OUTPUT 14V 

AMPS 1.5 WATTS 50W
FUSES LOCATED ON TRANSFORMER BOX ⚠️  T-2A-250V  2 AMP, ¼" X 1 ¼" POWER CORD IS SPECIFIED FOR USE WITH HOSPITAL GRADE RECEPTACLE REMOVE POWER CORD FROM WALL RECEPTACLE BEFORE SERVICING
FUSIBLES PLACÉES SOUS COUVERTURES ⚠️  T-2A-250V  2 AMP, ¼" X 1 ¼" LE CÂBLE D'ALIMENTATION EST SPÉCIFIQUE À UNE UTILISATION EN MILIEU HOSPITALIER DEBRANCHER LE CÂBLE D'ALIMENTATION AVANT TOUT DÉMONTAGE DE LA LAMPE

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For 230V

Sunnex CE MODEL PF 28016-M S/N	INPUT 230V  Hz 50 OUTPUT 14V  AMPS 1.0 WATTS 50W
FUSES LOCATED ON TRANSFORMER BOX ⚠️  T-1.25A-250V  1.25 AMP, ¼" X 1 ¼" POWER CORD IS SPECIFIED FOR USE WITH HOSPITAL GRADE RECEPTACLE REMOVE POWER CORD FROM WALL RECEPTACLE BEFORE SERVICING	
FUSIBLES PLACÉES SOUS COUVERTURES ⚠️  T-1.25A-250V  1.25 AMP, ¼" X 1 ¼" LE CÂBLE D'ALIMENTATION EST SPÉCIFIQUE À UNE UTILISATION EN MILIEU HOSPITALIER DEBRANCHER LE CÂBLE D'ALIMENTATION AVANT TOUT DÉMONTAGE DE LA LAMPE	
	
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8. Warranty

8.1 Limited Warranty.

Sunnex warrants that the Product, if properly used, will be free from defects in material and workmanship, for a period of three (3) years from the date of shipment to Customer. This Limited Warranty extends only to the original buyer. If the Product is determined to be defective within the warranty period, Sunnex, at its option, will repair or replace the Product, at no charge or refund the then-current value of the Product.

8.2 Disclaimers and Limitations.

This Limited Warranty shall be the sole remedy of Customer and the sole liability of Sunnex to Customer.

This Limited Warranty does not extend or apply to any defects, failures or damage due to or resulting from: (a) acts of God, accident, misuse, use of the Product other than its normal and customary manner, abuse or negligence; (b) everyday wear and tear; (c) alteration or modification of, or to any part of, the Product; (d) improper operation and maintenance; or (d) any repairs or attempted repairs by anyone other than Sunnex. This Limited Warranty does not cover any products sold AS IS or WITH ALL FAULTS. This Limited Warranty excludes the replacement of bulbs for the Product.



TO THE FULL EXTENT PERMITTED BY APPLICABLE LAW, THIS LIMITED WARRANTY REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SUNNEX DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF TITLE, NONINFRINGEMENT, ABSENCE OF LIENS OR INCUMBRANCES, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDLESS OF WHETHER SUNNEX KNOWS OR HAS REASON TO KNOW OF CUSTOMER'S PARTICULAR NEEDS. IF IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, THEN ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD SET FORTH HEREIN, AND THEREAFTER ANY IMPLIED WARRANTIES ARE EXPRESSLY DISCLAIMED.

No employee, agent, dealer, reseller or distributor of Sunnex is authorized to modify this Limited Warranty, or to make any additional warranties.

REPAIR, REPLACEMENT OR REFUND, AS PROVIDED UNDER THIS LIMITED WARRANTY, ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL SUNNEX BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR TORT DAMAGES OR LOSSES, WHETHER TO PERSON OR PROPERTY, INCLUDING DEATH, ARISING OUT OF OR RESULTING FROM ANY BREACH OF WARRANTY OR ANY OTHER LEGAL THEORY, OR ARISING OUT OF OR IN CONNECTION WITH THE PRODUCT OR CUSTOMER'S USE OF THE PRODUCT, EVEN IF SUNNEX IS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY EVENT, THE TOTAL LIABILITY OF SUNNEX TO YOU FOR ANY CAUSE WHATSOEVER SHALL BE LIMITED TO THE PURCHASE PRICE YOU PAID FOR THE PRODUCT. THIS LIMITATION SHALL APPLY REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT OR TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE).

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE

LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

8.3 Claims Procedure.

(a) Customer must contact Sunnex at (800)-445-7869 with a request for warranty service or to report a technical issue. Sunnex Technical Support will attempt to identify, diagnose and resolve the reported problem via the telephone.

(b) If attempts by Sunnex to resolve a reported problem are unsuccessful, Customer will then be provided with a Customer-specific Returned Merchandise Authorization number (RMA). The RMA number must be noted on any correspondence to Sunnex and displayed prominently on the outside packaging of any Product shipped to Sunnex.

(c) Within ten (10) days of receipt of the RMA number, Customer must ship the Product to Sunnex at Customer's expense (insuring the Product is recommended) in either its original packaging or packaging affording an equal degree of protection, to *Sunnex Inc. 80012 Tower Point Drive, Charlotte, NC 28227*, with a statement describing the problem in reasonable specificity. Proof of purchase must be included to obtain warranty service. Sunnex will not be held responsible for shipping damages that occur in transit. Any damage to the Product during shipping will not be covered under this Limited Warranty and shall be subject to a service charge.

(d) Subject to the limitations specified herein, upon receipt, Sunnex will inspect the shipped Product and, at its sole discretion, repair or replace the Product with the same or a like product to the extent it does not conform to this Limited Warranty. In the event Sunnex, at its sole discretion, opts to replace the Product, should said product be discontinued or no longer be offered for sale by Sunnex, a like product in design and functionality will be provided to Customer.

(e) Sunnex will ship the repaired Product or a replacement to Customer within ten (10) business days after receipt from the date that Sunnex receives the Product. Standard shipments to the Customer will be paid by Sunnex. Sunnex assumes no responsibility for shipment delays by the carrier.

(f) If Customer requires warranty service to be provided in less than ten (10) business days, but not less than three (3) business days, Sunnex will charge Customer an additional One Hundred Dollars (\$100.00) express handling charge per request for each Product.

8.4 Customer Responsibilities.



(a) To validated warranty customer is required to fill out online or provided warranty card.

(b) Customer is required to follow the user manual associated with the Product for proper operation.

(c) Customer is required to perform periodic preventive maintenance as called for in the user manual associated with the Product.

(d) Any modifications or repairs made to the Product without prior written authorization from Sunnex will render this Limited Warranty null and void. Instances whereby this is determined to be the case by Sunnex technical staff will be subject to an initial service charge of \$75.00 (\$25.00 evaluation charge and \$50.00 minimum labor cost).

8.5 Miscellaneous.

In the event that any provision of this Limited Warranty should be or becomes invalid and/or unenforceable during the warranty period, the remaining provisions shall continue in full force and effect.

The provisions of this Limited Warranty shall be governed by the laws of the State of North Carolina without regard to its conflict of laws principles. This Limited Warranty shall not be modified except by an agreement signed by both parties specifically referencing this Limited Warranty.

This Limited Warranty represents the entire agreement between Sunnex and Customer with respect to the subject matter herein and supersedes all prior or contemporaneous oral or written communications, representations, understandings or agreements relating to this subject.

For service assistance or resolution of a service problem, or for Product or warranty information, write to *Sunnex Inc. 8001 Tower Point Drive, Charlotte, NC 28227*, or visit www.sunnex.com.

8.6 Optional Extended Limited Warranty Plan.

The purchase of the Optional Extended Limited Warranty extends the duration of this Limited Warranty from a period of three (3) years to a period of five (5) years from the date of shipment to Customer. The Optional Limited Warranty may be purchased at the time of the original purchase of the Product or the Extended Limited Warranty to become effective and apply to the Product. Customer must pay the appropriate Extended Limited Warranty fee and upon initial purchase, register each Product with Sunnex

within thirty (30) days from the date of shipment to Customer by Sunnex, or a Sunnex authorized dealer or reseller.

Sunnex Customer Service

Sunnex Inc, USA	+ 1 800 445 7869
Sunnex Equipment AB Sweden	+ 46 565 177 00
Warranty	+ 1 800 445 7869

9. TROUBLESHOOTING

Please refer to the following table for troubleshooting.



CAUTION! DISCONNECT THE LIGHT FROM THE POWER SUPPLY BEFORE ATTEMPTING ANY OF THE ELECTRICAL CHECKS MENTIONED BELOW.

PROBLEM	POSSIBLE CAUSE	SOLUTION
No light from light head	Light head is on OFF position	Turn on the ON/OFF switch to ON position
No light from light head, when ON/OFF switch is ON	Bulb has not been installed or it has burned out	Refer to bulb replacement procedure in the manual
	Fuse is blown	Inspect / replace the fuse following the fuse replacement procedure
	No power to the electrical box	Check for facility power to the electrical box
	Power Supply unit is malfunctioning	Call Sunnex Customer Service
	Incorrect bulb installed	Install correct bulb
Bulb burns out quickly	Incorrect bulb installed in the light head	Install correct bulb

Light output is irregular in its shape or intensity	Incorrect bulb installed in the light head	Install correct bulb
	Bulb/reflector is not seated in its holder correctly	Adjust the bulb/reflector so it seats in the holder properly.
No light from light head even when the bulb and fuse are in good condition, light head flashes intermittently when light head or arms are moved	Circuit or wiring problem within transformer, arm assemblies or other part of lighting system	Check all wiring connections. If problem cannot be repaired, call Sunnex Customer Service
Various arms do not move freely at the joints	The black knob at joints is tightened too much	Adjust the black knob on joints by appropriate tightening

10. APPENDIX

Guidance and Manufacturer's Declaration — Emissions All Equipment and systems		
The PF MRI Light (PF 28016-M) is intended for use in the electromagnetic environment specified below. The customer or user of the PF MRI Light (PF 28016-M) should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Enforcement — guidance
RF Emissions CISPR 11	Group 1	The PF MRI Light (PF 28016-M) uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions	Class B	The PF MRI Light (PF 28016-M) is suitable for use in all establishments including

CISPR 11		domestic, and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonics IEO 61 000-3-2	Complies or Not applicable	Complies
Flicker IEC 61000-3-3	Complies or Not applicable	Complies

Guidance and Manufacturer’s Declaration—Immunity All Equipment and Systems

The PF MRI Light (PF 28016-M) is intended for use in the electromagnetic environment specified below. The customer or user of the PF MRI Light (PF 28016-M) should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±6kV contact ±8kV air	±6kV contact ±8kV air	Floors should be wood, concrete or ceramic tile. If floors are synthetic, the relative humidity should be at least 30%.
Electrical Fast Transient/burst IEC 61000-4-4	±2kV on AC Mains	±2kV on AC Mains	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV Differential ±2kv Common	±1 kV Differential ±2kV Common	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage	>95% Dip for 0.5 Cycle 60% Dip for	>95% Dip for 0.5 Cycle 60% Dip for	Mains power quality should be that of a typical commercial or hospital environment. If the user of the PF MRI light requires continued

variations on power supply input lines IEC 61000-4-11	5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	operation during power mains interruptions, it is recommended that the PF MRI Light (PF 28016-M) be powered from an uninterruptible power supply or battery.
Power Frequency 50/60Hz Magnetic Field IEC 61 000-4-8	3A/m	3A/m	Power frequency magnetic fields should be that of a typical location in a typical commercial or hospital environment.

Guidance and Manufacturer’s Declaration — Emissions Equipment and Systems that are NOT Life-Supporting

The PF MRI Light (PF 28016-M) is intended for use in the electromagnetic environment specified below. The customer or user of the PF MRI Light (PF 28016-M) should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment — Guidance
Conducted RF IEC 61 000-4-6	3 Vrms from 150 kHz to 80 MHz	V1 = 3 Vrms	Portable and mobile RF communications equipment should be separated from the PF MRI Light (PF 28016-M) by no less than the recommended separation distances calculated/listed below: $D = (3.5/V1) \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	E1 = 3V/m	$D = (3.5/ E1) / \sqrt{P}$ 80 to 800 MHz $D = (7 / E1) / \sqrt{P}$ 800 MHz to 2.5 GHz Where P is the maximum power rating in watts and D is the recommended separation distance in

			<p>meters.</p> <p>Field strengths from fixed transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels (V1 and E1).</p> <p>Interference may occur in the vicinity of equipment containing a transmitter.</p>
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Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the PF MRI Light (PF 28016-M) Equipment and Systems that are NOT Life-Supporting

The PF MRI Light (PF 28016-M) is intended for use in the electromagnetic environment in which radiated disturbances are controlled. The customer or user of the PF MRI Light (PF 28016-M) can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications Equipment and the PF MRI Light (PF 28016-M) as recommended below, according to the maximum output power of the communications equipment.

Maximum Output Power (Watts)	Recommended Separation Distances for the PF MRI Light (PF 28016-M)		
	150 kHz to 80 MHz $d = 1.1667 \sqrt{P}$	80 MHz to 800MHz $d = 1.1667 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3333 \sqrt{P}$
0.01	0.11667	0.11667	0.23333
0.1	0.36894	0.36894	0.73785
1	1.1667	1.1667	2.3333
10	3.6894	3.6894	7.3785
100	11.667	11.667	23.333

REVISION HISTORY

REVISION DESCRIPTION	REVISION DATE	REVISION #
Remove Velcro from caution statement on page 7, reword #3 on page 9	August 24, 2011	1.2
Updated address and phone	November 3, 2015	1.3

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