

WARDRAY PREMISE

MR6300D Relax & View Video Systems



OPERATORS & INSTALLATION MANUAL



MR Conditional up to and including 3 Tesla



Introduction

Thank you for purchasing the MR6300D Relax & View Video system. This product is manufactured as MR Conditional, for use up to a maximum of 3 Tesla and is tested to the highest standards.

All products are labelled inline with the International Standard F2503-13 "Standard Practice for Marking Medical Devices and Other Items for Safety in the Magnetic Resonance Environment".

To ensure that you obtain maximum benefit from the MR6300D Relax & View Video system, please take a few minutes to read the enclosed information regarding Operation, Service and Maintenance. After reading this manual, store it in a safe place for future reference.

If you have any problems in the meantime or would like any advice about this or any other MR products from the Wardray Premise range, please contact us at the following address:-

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New Safety Definitions for MRI as Defined by International Standard F2503-13

MR SAFE:



An item that poses no known hazards resulting from exposure to any MR environment. MR SAFE items are composed of materials that are electrically nonconductive, non-metallic, and nonmagnetic.

MR CONDITIONAL:



An item with demonstrated safety in the MR environment within defined conditions. At a minimum, address the conditions of the static magnetic field, the switched gradient magnetic field and the radiofrequency fields. Additional conditions, including specific configurations of the item, may be required.

Supplementary marking – additional information that, in association with marking as “MR CONDITIONAL,” states via additional language the conditions in which an item can be used safely within the MR environment.

MR UNSAFE:



An item which poses unacceptable risks to the patient, medical staff or other persons within the MR environment.

Warranty

Wardray Premise Ltd warranty this product to be free of defective materials and faulty workmanship for a period of 12 months.

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General Information

The system is designed to operate with a video signal received from a DVD Player, or from a Laptop / PC with HDMI output. A DVD player is supplied as standard with the system. Please see the players own manual for its operating instructions.

The signal from the DVD is fed to an optical converter and audio out unit, the optical signal is then fed to the screen and the audio to the scanners audio system.

The screen is a 24" widescreen, with a resolution of 1920 x 1080 and is housed in a fully shielded RF enclosure. The screen is usually mounted on the back wall behind the scanner and is then viewed with either the mirror on the head coil or via the mirror mount assembly supplied with the unit. The ability to reverse and/or invert the image means that the picture can always be viewed correctly, regardless of patient orientation in the scanner, or whether a single or double mirror assembly is in use.

Audio to the patient will be either through the scanners own inbuilt audio system or alternatively through the Wardray Premise MR200 PureSound Audio Relaxation System.

Other than the controls for the screen described on the next page and those described in the DVD players manual, there are no other user controls, and there are no user serviceable parts in the system.

It is recommended that the screen is switched off at the end of the working day

Power Requirements

A total of four 220 / 240 Volt 50Hz socket outlets are required:- Two in the Technical Room for the Power Supply for Screen, and two in the Control Room, one for the DVD Player and one for the Optical Converter Unit.

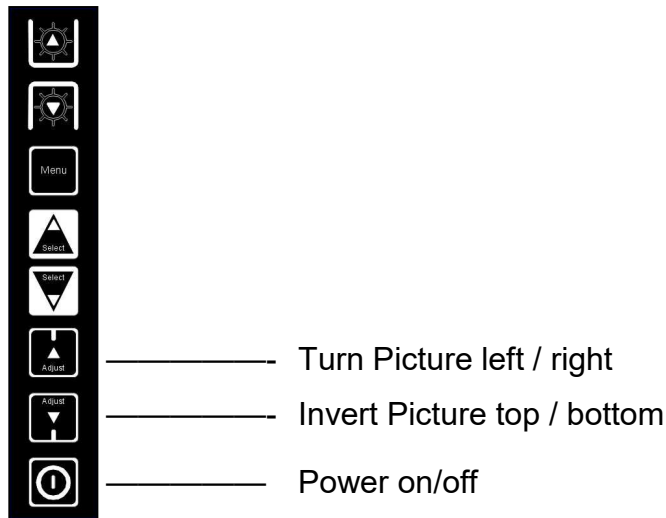
Total Current Draw is approximately 3 amps for all four outlets.

Operating Instructions

MR6300D

Panel Guide

The Panel has 8 operator keys on RH side of screen enclosure as follows. Only the bottom three are used.



Adjacent to the 'brightness up button is a red LED. It will light up when power is connected to the system irrespective of the status of the power switch, when a signal from either the DVD player or a laptop / PC is present it will turn to Green. By pressing either the Invert and Turn Picture buttons will alter the picture and by pressing either of the two buttons for the second time, the picture will revert to its original state.

To use a laptop/PC instead of the dvd player, the HDMI cable that is plugged into the dvd player will need to be taken out and plugged into the laptop/PC.

Optional Video Stand MR6003.

Please Note: The stand has not been designed to be fully mobile.

The screen unit contains a certain amount of ferrous magnetic content that could potentially cause the screen / stand unit to become hazardous if moved too close to the magnet.

The stand with the screen affixed to it, will be marked as MR CONDITIONAL with an additional label stating "Must be kept at least 1m from Magnet Bore"

On installation the floor at the rear of the scanner should have had suitable markings placed on it, to ensure that the stand is at least 1m from the magnet bore, and also does not allow the table top to clash with it when fully extended to the rear, as well as to assist with centring the screen with the bore.

MR6300D - MRI Relax & View TFT Panel Installation Notes

Equipment supplied:

24" LED Widescreen panel & mounting plate
40m. Dual fibre optic lead, ST connectors
10 m 4 core shielded DC supply lead with XLR-LEMO connectors
Pen panel filter box with LEMO & XLR connectors
12V Power Supply.
32V Power Supply.
Y Power combiner cable 2 XLR into 1 XLR
Fibre optic Video Sender Unit
5V power supply for above
3m Phono to Phono lead & 3m Phono to 3.5mm Jack Plug
Viewing mirror MR6001
Tie wraps & adhesive bases
DVD Player (UK Only)

Additional for fMRI Units:

1 Set of MediGoggles MR6002

For *Philips* Installations - Ground Loop Isolator

Ferrous Tools supplied – Non Wardray installations

10mm drill for hole punch
19mm hole punch
Hex key for punch

Local supply:

20mm surface trunking - Self Adhesive—If required
Mains extension lead (Optional for Computer room if power socket not adjacent to pen panel)

Tools required for Installation:

Laser Level on Tripod
Spirit Level.
Drill.
Hand Tools.

MR6300D - MRI Relax & View TFT Panel Installation Notes

Safety Notes:

Panel handling:

The panel contains a mu-metal shield which, by definition is a magnetic material. Also the TFT panel itself is backed by a cover which is also magnetic. The panel must not be allowed to come closer than 1 metre to the magnet when being carried into the magnet room and should be held with two hands placing the body between the panel and the magnet.

Mounting the pen panel filter:

The pen panel filter has a 60mm x 30mm footprint and requires a single 19mm diameter mounting hole.

Locate a suitable location on the pen panel, (check both sides of panel for any obstructions), and drill a 10mm pilot hole for the punch, from the technical room side. Make arrangements to catch any swarf from the other (magnet) side.

Insert one half of the hole punch from the technical room side and get a helper to attach the other half of the hole punch from the magnet side. Using the supplied 8mm AF Allen key tighten the punch to make the hole.

Mount the filter box using the Lemo connector barrel from the technical room side and get a helper to fix the single nut on the magnet side. Make the fixing secure by tightening the Lemo nut with a 20mm spanner.

Installing the video panel:

Please Note: The Screen Assembly should ideally be at least 75cm from the back of the magnet bore.

The panel mounting plate is supplied fitted to the panel secured with a single M5 screw on the bottom edge. (3.0mm Allen key required)

Outside the magnet room, remove the screw and the mounting plate from the panel.

It is assumed the rear wall of the magnet room is parallel to the rear face of the magnet. If this is not the case then a suitable bracket can be supplied to make sure that the display and the rear face of the magnet are parallel to each other.

The display panel needs to be centred on the vertical axis of the magnet bore. Use a laser level set up as far back from the front face of the magnet bore as possible, project a vertical line through the magnet bore onto the rear wall of the magnet room. Mark this line on the wall using a pencil. Normally the panel is mounted slightly above the horizontal centre line, such that a patient in the bore can view all of the panel through a head coil mounted mirror. The easiest way to achieve this is with the help of another person lying in the magnet bore and observing the rear wall via a reversed mirror set up on a head coil. Adjust the height of the mounting panel until all of the panel can be seen through the mirror.

MR6300D - MRI Relax & View TFT Panel **Installation Notes**

Safety Notes:

Position the mounting panel, aligning its centre line with the centre line previously marked on the wall. Mark off the top edge of the mounting panel using a spirit level. Using plasterboard fixings, screws & washers, drill the rear wall using the mounting panel as a template. Depending on the quality of the fixing 4 to 6 fixings will be required. Use off non ferrous fixings is assumed. The panel itself is located onto the fixing plate and held with a single M5 stainless screw in the centre of the base. (3.0mm allen key required)

The fibre and DC power cable are normally run either in surface trunking vertically from the connector area in the centre top of the panel in to the suspended ceiling void, or behind the wall to the ceiling void.

Run the fibre Optic Cabling:

A double fibre optic cable is supplied. Connect Red to Red and Black to Black. Usually the cable is run from the panel, up the wall in the trunking, through the ceiling void and down into the pen panel area. It will depend on the scanner manufacturer as to how the cabling is run through the pen panel. If there is a wave guide from the control room into the magnet room above the false ceiling, then this can be used instead of routing it through the pen panel. Run the fibre through to the control room to where the DVD player is to be located. Arrange for unwanted fibre to be left in the ceiling void.

Install the fibre optic video sender box and power supply:

The plain grey plastic box is the Fibre Optic Sender. Connect the fibre cable to the sender box after removing the dust cap. It has a bayonet connector and a locating spigot. Treat this with care. The fibre optic cable is not a wire and should not be kinked or bent round a radius tighter than 5cm.

Connect the 5V power supply and finally the HDMI lead to the DVD player or to a laptop / PC (see page 6).

MR6300D - MRI Relax & View TFT Panel Installation Notes

Safety Notes:

Running the 12/32 volt DC power cables:

The 10m long power cable is supplied with an XLR connector and a Lemo connector. The female XLR is for the video panel end. The object is to keep the DC power cable run as short as possible in the magnet room, whilst keeping it as far from the magnet and magnet cabling as possible.

The reason being the DC power cable can act as a radiating antenna for signals emanating from the video panel. These can appear as unwanted artefacts on the scanner display.

(The Wardray engineer's installation cable set contains identical cables of 5m, 7.5m and 12.5m in length. Always use the shortest possible cable).

Typically this means a routing up the wall from the display panel into the ceiling void, around the edge of the wall at ceiling height and then dropping down into the pen panel area. Secure the cable to the pen panel using adhesive tie wrap mounting plates & tie wraps. Big loops of DC power cable near the magnet must be avoided as they can potentially radiate RF signals which can be seen as interference lines on the scanner images.

Starting at the display panel area, draw the cable with the Lemo connector up into the ceiling void, across to the drop point for the pen panel via the edge of the room. Drop the cable down to the pen panel, and plug the Lemo connector into the filter unit. On the other side of the pen panel, locate a suitable power socket for the power supply. Try to ensure the power cable does not run parallel to the magnet cables.

If the in room power cable is too long the excess must be looped backwards and forwards and Ty rapped. Under no circumstances must it be looped as this will aid inductive coupling.

Install the power supply:

Plug both the 12v power supply (4 pin XLR) and also the 32V (3 pin XLR) into the Y Connector and then plug this into the pen panel filter unit using the 5 pin XLR connector. Position the whole assembly in the most convenient position.

Test the DC cable before connecting to video:

Power up the DC cable power supply and verify at the video display end that pins 1 & 5 are circa 32V DC with respect to each other, and pins 2 & 4 are 12V DC in respect to each other. Pin 3 is not used.

Note the system has a floating 0 volts supply. The XLR metal body is connected to the cable braid. This should read a short circuit to the pen panel using an ohmmeter. If the volts are OK and there is a circuit between the XLR body and the pen panel, connect the XLR and fibre optic cables to the video display and offer up to the wall mounting plate. Secure with the M5 screw after visually aligning the display to the plate.

MR6300D - MRI Relax & View TFT Panel Installation Notes

Safety Notes:

Connecting the DVD Player:

Connect HDMI lead from grey box to HDMI socket on DVD player.

On Philips systems the audio output may need to be fed through a Ground Loop Isolator before being connected to the Philips audio system, this is to overcome mains hum.

Testing the system:

With the video unit and the video sender switched on, playing a DVD should result in an image being displayed on the panel. Check also that the audio can be heard correctly through the headphones and speaker system if applicable.

Installations using Optional Video Stand MR6003:

If the screen unit is mounted on the optional Video Stand MR6003 then consideration will need to be made as to whether to mount the upright section in the middle or rear of the base unit. The appropriate holes in the stand back plate will need to be used to ensure the correct height of mounting of the screen unit.

Consideration will need to be given to the way that the power and fibre optic cables are run. The pole supplied with the stand can be used to ty-wrap the cables to.

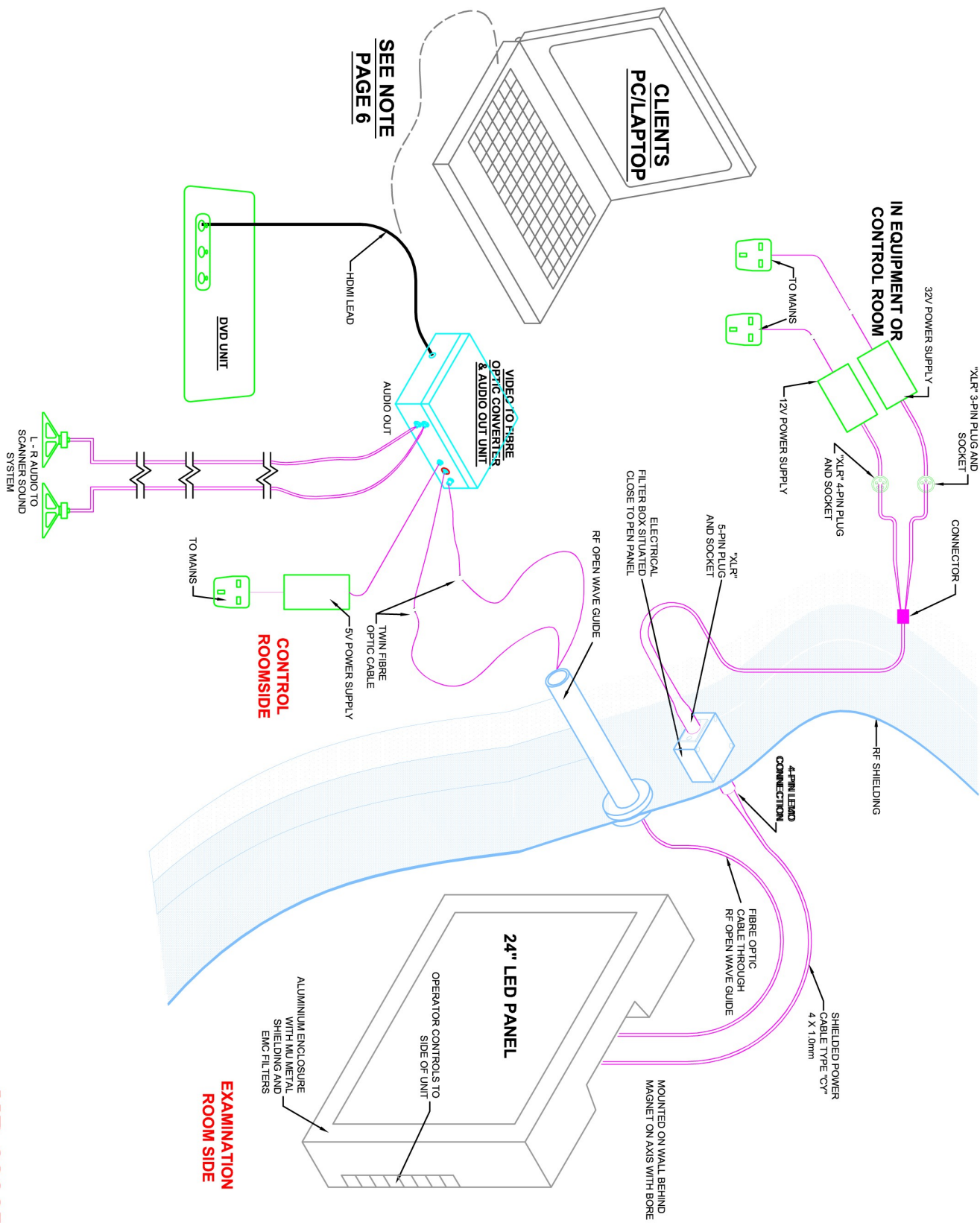
Check that the face of the screen is no closer than 1metre from the face of the magnet and that the stand has both the MR Conditional and "Must be kept at least 1m from Magnet Bore" labels attached.

It is suggested that the floor at the rear of the magnet is suitably marked as to where the feet should be to ensure that the screen is at least 1m from rear of magnet and also centred. You will also need to check that the scanner table top when fully extended at rear of scanner does not clash with stand.

With GE this is obvious as the bed runs to the extent of the section at the rear of the scanner. Siemens scanners have 2 types of beds, some only go out a short distance whereas some have a telescoping action and protrude a lot further.

Please note the screen if attached firmly to the wall will work at a lesser distance. It is the magnetic components as highlighted at the beginning of this section that necessitate this warning.

If you should experience any problems please do not hesitate to contact Wardray Premise contact details are on page 2.



**SEE NOTE
PAGE 6**

**IN EQUIPMENT OR
CONTROL ROOM**

**CONTROL
ROOMSIDE**

**EXAMINATION
ROOM SIDE**

MR 6300D

NOTES

**WARDRAY
PREMISE**
Wardray Control Panel
Scanline
Surrey KT7 0SP
Telephone: +44(0) 20 8398 9911
Fax: +44(0) 20 8398 8032

Project:
**FITTING DETAILS
INSTALLATION CONFIGURATION**

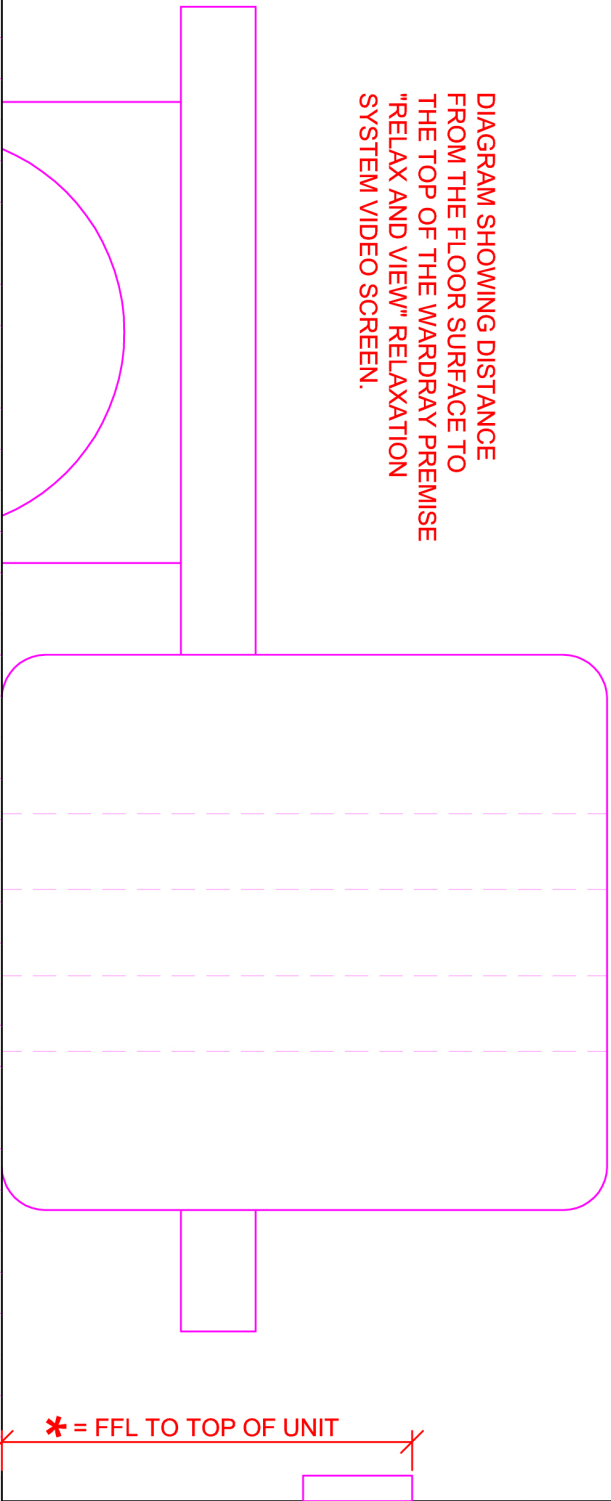
Title:
**MRI VIDEO/DVD "RELAX & VIEW"
RELAXATION SYSTEM
MR 6300 & TMRI VARIANT**

Scale	Date	Drawn by
NTS @A4	08/2011	M CHUDLEY
Job Number	Drawing Number	Revision
1333		F

*** = DISTANCES FROM FFL TO TOP OF WARDRAY PREMISE VIDEO UNIT ARE AS FOLLOWS:**

- GE = 1410mm
- PHILIPS = 1440mm
- SIEMENS = 1340mm

DIAGRAM SHOWING DISTANCE FROM THE FLOOR SURFACE TO THE TOP OF THE WARDRAY PREMISE "RELAX AND VIEW" RELAXATION SYSTEM VIDEO SCREEN.



*** = FFL TO TOP OF UNIT**

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<p>Project</p> <p>MAIN SCANNER MANUFACTURERS TYPICAL DETAIL</p>	
<p>Title</p> <p>FITTING HEIGHTS FROM FFL OF "RELAX AND VIEW" VIDEO SYSTEM</p>	
<p>Scale</p> <p>1:25 @A4</p>	<p>Date</p> <p>15/7/2009</p>
<p>Job Number</p> <p>1480</p>	<p>Drawn by</p> <p>M CHIDLLEY</p>
	<p>Revision</p>

Fault Finding Procedure for MR6300D

In Technical Room:

Check that both 12V and 32V power supplies are working, check all connections thoroughly by pushing together, as it has been found that although the green lights are on there can be problems when signal sent to screen.

In Scan Room:

Is red light on side of screen on when power present but no signal present? Should turn green when signal present.

If red LED is on remove power from screen (remove XLR plug on top of screen or remove LEMO plug to power filter) and then plug back in. Screen should show Wardray Premise logo followed by "Scanning for Inputs". If it does not show scanning for inputs follow Menu Chart – see separate document.

In Control Room:

Check 5V power supply to Optical Converter (OC) box plugged in and Blue LED is on.

Check that DVD player is running and that the HDMI cable to Optical Converter is plugged in.

Check that Fibre Optic (FO) cables are connected.

Please note:

If there is signal present from DVD player a GREEN light will show on side of screen unit, if no signal light will be a RED. If RED light shows the problem could be either that the DVD player is faulty or there is a break in the fibre optic cables.

EC DECLARATION OF CONFORMITY

Wardray Premise Ltd
Hampton Court Estate
Summer Road
Thames Ditton
Surrey KT7 0SP

MR6300 Relax and View Video System

MR6300fMRI Relax and View Video System with Functional Imaging Capability

I, the undersigned, certify that the product described above, and documentation detailed in the Technical File, is in conformity with the applicable provisions of:

FCC CFR 47: Part 15B: 2100
FCC ANSI 63:4: 2003
EN 60601-1-2: 2007
EN 55011: 2009 +A1: 2010
EN 6100-3-2: 2006
EN 6100-3-3: 2008
EN 6100-4-2: 2009
EN 6100-4-3: 2006 + A2: 2010
EN 6100-4-4: 2004 + A1: 2010
EN 6100-4-5: 2006
EN 6100-4-6: 2009
EN 6100-4-8: 2010
EN 6100-4-1: 2004



Ian J Benton
Technical Applications Manager

Date: 1st June 2012

WARRANTY REGISTRATION FORM



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Website: www.wardray-premise.com

REPLY BY FAX: +44 (0) 208 398 8032

Name:.....
Job Title:.....
Company:.....
Address:.....
Telephone:.....
Email:.....

To receive full warranty cover on your equipment please complete and return this form at your earliest convenience.

Product serial / reference number

Please enter date product received

If your department currently has any other Wardray Premise Ltd equipment which is not already covered under a service contract please contact us to discuss an all inclusive package

If you are interested in any of the following products please indicate accordingly below: