

# SIEMENS

## MAGNETOM

**MR**

### Troubleshooting Guide

System

Host / Imager

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In most cases, the first question to arise is: Is the problem caused by the hardware or software?

### Host

For the host, it is important to save the site-specific data each time you make changes to the site-specific configuration, tune-up, or sequences and protocols. In case of a hard disk crash, you will be able to restore a valid set of site-specific data.

If you suspect defects in the host hardware (except CD-RW "CD-burner"), replace the complete host.

<b>NOTE</b>
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**The dongle is console-specific to protect the customer and service licenses (the dongle is not a part of the host HW.)**

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### Imager

The Imager warrants no software troubleshooting since software is loaded into RAM via network at each boot.

The Imager software is located at the MRC.

If you suspect defects in the Imager hardware (except the PCI receiver boards), replace the complete Imager.

### Tools

System software, including site-specific data.

### Additionally required documents

TDOC Installation Software (valid for the installed software version on your system).

## Host strategy

Host strategy table:				
No	Test Step	Probable Cause / Status	Service Action	Reference
1.	System boot	Boot hangs	Check that keyboard and mouse cables are properly plugged at the back of the "host"	
			Check the BIOS settings (Install BIOS settings from BIOS CD)	Refer to TDOC: "Install software" valid for the installed software version.
2.	NUMARIS startup	NUMARIS start-up fails	Check that the licenses are valid	Refer to " <b>Application License</b> "
			Check the DONGLE	Refer to " <b>Defective DONGLE</b> "
			Check if HD's are available	Refer to " <b>Check if HD's are available</b> "
3.	Monitor output	No output at the TFT monitor	Connect the TFT monitor to your service laptop; if still defective, replace TFT monitor	
			Regarding low-quality TFT monitor output	Refer to TDOC <b>Replacement of Parts</b> "TFT Monitor"
4.	In-room MRC	No output at the in-room TFT monitor	Connect the in-room TFT monitor to your service laptop; if still defective, replace TFT monitor	
			Remember to perform the " <b>protective conductor measurement</b> " at the new in-room TFT monitor before handing the system over to the customer	Refer to <b>Safety-related Tests</b>
Remarks: The CD-RW drive (CD burner) is the only FRU for the "Host".				

## Imager strategy

Imager strategy table:				
No	Test Step	Probable Cause / Status	Service Action	Reference
1.	Imager boot / network connectivity	Measurement network problem, e.g. defective NIC at the Imager / "Imager not ready"	Test network connectivity from "MRC" to the "Imager"	Refer to " <b>Connectivity MRC to MPCU/Imager</b> "
		Boot fails "Imager not ready"	Check the Imager DHCP boot environment for the measurement network at the MRC.	Refer to ( <a href="#">Imager boot environment / p. 13</a> )
2.	Imager tests	Defective PCI receiver / Image quality problems	Perform Imager tests (Service level 4 or higher, full access is needed)	Refer to ( <a href="#">Imager tests / p. 13</a> )
		Defective Imager HW / Image calculation fails		
3.	Accessing the operating system of the Image	Imager HW detection	Check if correct HW is recognized by the operating system / Imager performance monitoring	Refer to ( <a href="#">Accessing operating system at the Imager / p. 13</a> )
		Imager performance		
		RAW data RAID access error		

## Host Procedures

### Replacing the host

- If the “Host“ allows access to the “Service platform“ (service software, e.g. as user administrator “**Disable Auto login for one session**”, select **Backup & Restore** in the Service platform. (The Master-Backup package contains all packages except the HIPAA)
  - “Master backup“
  - **(Only valid for systems with HIPAA activated)** “ Security\_settings“
- Remember to move the dongle from the old “host“ to the new “host“
- Install software at the new Host according to TDOC "Install Software" valid for your system.

### In-room MRC

The In-Room MRC is an option consisting of an additional TFT monitor, keypad (3 keys) and trackball located in the examination room.

#### Monitor

The video signal from the imager is split via the interconnection box to the In-Room MRC monitor and the MRC monitor. Both monitors have the same resolution and simultaneously display the same image.

#### Trackball

The trackball and the keypad are used to control NUMARIS from the In-Room MRC.

#### Protective conductor measurement

In case parts have been replaced for the In-Room MRC prior to switching on the system, measure the protective conductor resistance.

Use the protective conductor meter and measure the resistance between the protective conductor connection on top of the ACC and an uncoated screw at the top cover of the In-Room MRC.

**NOTICE**

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**Do not measure directly at the trackball.**

- ⇒ **Since a strong current (about 10A) is used for the measurement, the small contact springs of the trackball may be damaged.**
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Should the resistance exceed 200 mOhm, test the protective conductor in question for satisfactory galvanic connection.

⇒ In the interest of the safety of our personnel and others, the protective ground wires must be installed prior to switching on the product / system for the first time. The same applies when all work has been completed or before turning the system over to the customer. Pls. proceed according to the product documentation.

**Location and assignment of LEDs and switches**



Fig. 1: Interconnection box, front - indicator LEDs

- Pos. 1 LED transmission fault
- Pos. 2 LED fiber link

<b>Power switch</b>		Master switch for the interconnection box as well as the monitor. The monitor can be switched on/off separately using the soft switch at the monitor.
<b>Power LED</b>	Green	Power on
<b>Video ok</b>	Green	Valid signal is connected
<b>Fiber link</b>	Green	Fiber cable and connections are ok
	Blinking	Fiber cable or connection is faulty (at least one of two optic fibers)
<b>Transmission fault</b>	Off	Signal transmission ok
	Blinking red	Signal transmission fault occurred

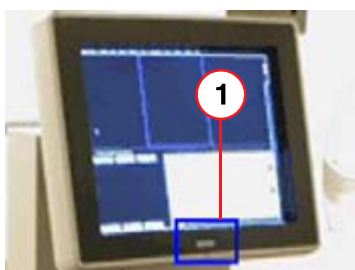


Fig. 2: Monitor front side - indicator LED

- Pos. 1 Indicator LED



Fig. 3: Monitor front side - indicator LED magnified

- Pos. 1 Indicator LED



<b>LED on front side</b>	Green	Display shows information
	Yellow	No signal or power down of host
	Off	Monitor off or interconnection box off



Fig. 4: Right side of monitor - keypad and LEDs

<b>Energized</b>	Green	Indicates power on for the interconnection box, and power supply cable from interconnection box to monitor is ok
<b>BL max</b>	Off	Backlight is not at maximum
	Red	The backlight is set to maximum resp. There is no more redundancy of brightness control caused at the end of the lifetime *)
<b>MENU/enter</b>		No function in normal operation (OSM locked)
		By pushing the MENU/enter button during power on, the OSM is unlocked
		If unlocked, the OSM can be started or inputs can be confirmed
<b>CONTR./right</b>		Hotkey for contrast adjustment
		Value increase in menu
<b>BRIGHT./left</b>		Hotkey for brightness adjustment
		Value decrease in menu
<b>AUTO/escape</b>		Hotkey for auto configuration of screen position
		Close the active menu
		Reset to default setting, if pressed down for 3 seconds
<b>ON/off</b>		Switching on/off the monitor (softswitch)
		An unlocked OSM is automatically locked after switching off/on

In back of monitor - indicator LEDs

<b>POWER</b>	Green
<b>VIDEO OK</b>	Green
<b>Fiber link</b>	Green
	Blinking
<b>Transmission fault</b>	Off
	Blinking red

**Hotkeys**

**Auto Configuration**

This function will adjust the screen position to the signal source.

Using an analog video signal, **perform this adjustment** after

- the In-Room MRC has been connected to the system
- the interconnection box has been replaced

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