Expression Model **MR400**

MRI Patient Monitoring System

Quick Reference Guide

PHILIPS

MRI Conditions of Use

Do not operate the cart inside the 5000 gauss field line of the MR magnet or up to the face of a 3T magnet, whichever is greater, as measured from the center line of the bore.

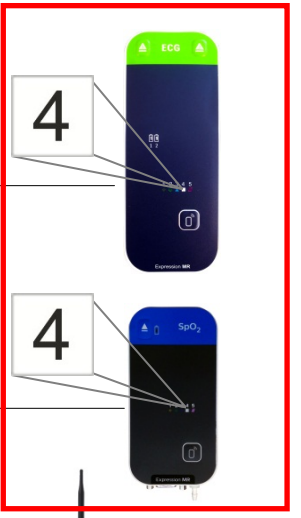
Keep modules outside the field of view:

- Position as close to the bore opening and iso-center as possible
- Place on a cushioned surface

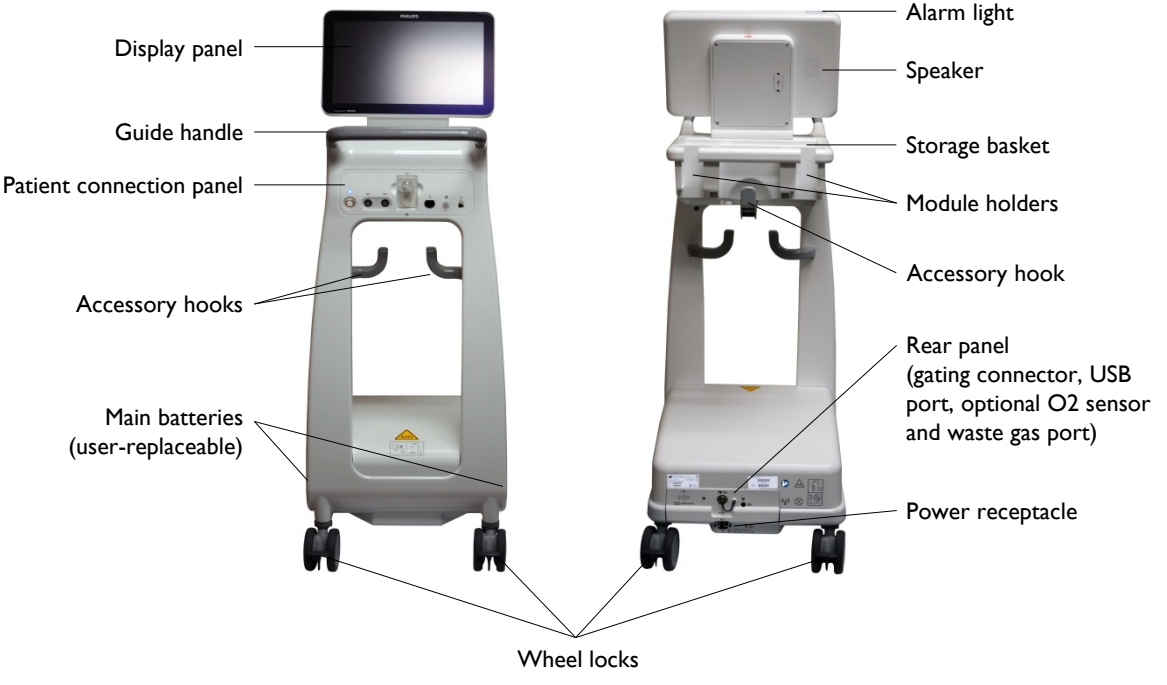
Network Compatibility

All components must be on the same wireless network channel for proper communications.

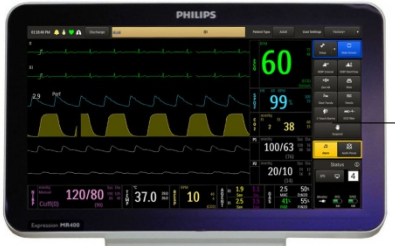
T5



Exterior Overview



Display Panel & Patient Connections



Touch screen LCD

Power LED:
- Green is power on (AC or battery)
- Blue is power off, plugged in, with batteries charged or charging
- Red is power fault detected

Power button:
- Press momentarily to turn on
- Press for 2 seconds to turn off

IBP (P1 and P2) ports (optional)

Temperature port (optional)

NIBP port

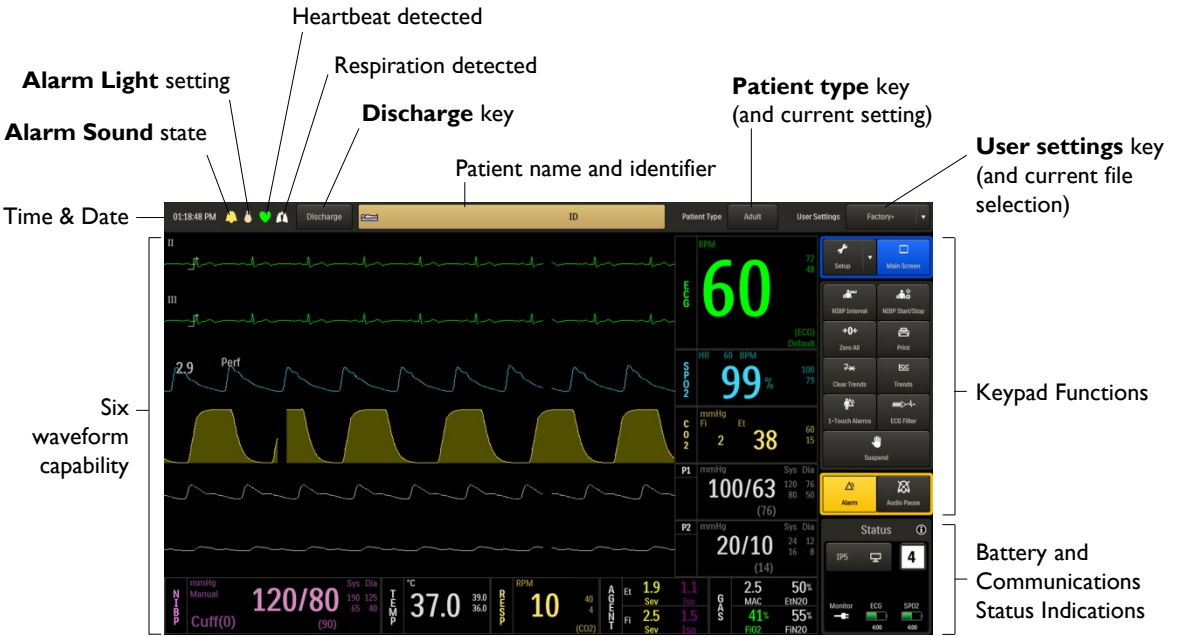
Loflo CO2 port (optional)

AGENT sample port (optional)

AGENT water trap (optional)

☑ ***Note:*** *This illustration shows a composite of all MR400 options; your device will not have all of these options.*

User Interface



☑ ***Note:*** *See the IFU for information about syncing time, user settings, and patient data with the IP5.*

Keypad Functions

Accesses the **Monitor Setup**, **Printer**, and **Alarms** menus

Returns the normal mode, closing any open menu, option or dialog box

Accesses the NIBP automatic measurement **Interval** options

Begins a new or ends a current NIBP measurement

Zeros all active invasive blood pressure channels

Initiates the remote print function when using an equipped IP5 and indicates the printer's state

Clears stored trend data

Accesses the **Trends** menu

Sets all alarm limits according to **1-Touch High %** and **Low %** values

Accesses the **ECG Filter Mode** options

Places the MR400 in suspend mode

Acknowledges an active alarm

Temporarily deactivates alarms

Six Waveform Capability

Displays up to six waveforms: ECG (2), SpO2, CO2 (when equipped), IBP (P1 & P2, when equipped)

Battery & Communications Status Indications

Ensure that no warning (⚠) exists

Displays the **Status Information Panel**

IP5 communications status indication

Assigned network channel indication (1–10) for the monitor (cart)

Monitor (cart) power indication

wSPO2 module status indication

wECG module status indication

Status indications – Communications warnings:

Referencing the monitor's network channel, ensure that the same network setting was used for the related component. wECG and wSpO2 modules must also have a battery installed. If using an IP5, ensure that it was turned on.

Status indications – Battery warnings:

Check the battery charge level for the related component (time remaining is displayed in hours:minutes, and connect to AC power [Monitor] or install a charged module battery [wECG or wSPO2].)

Battery Charging Station

Not MR safe

Power LED:
Status Indication
- Green: Power cord connected to AC mains
- No color (LED Off): Power cord disconnected

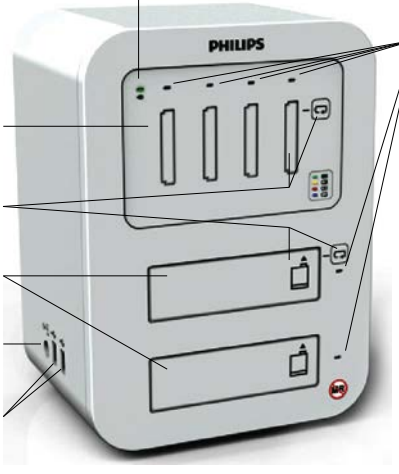
Module battery bay (4)

Reconditioning bays and buttons

Cart battery bays

+15 VDC charging port (for Essential battery)

USB charging ports



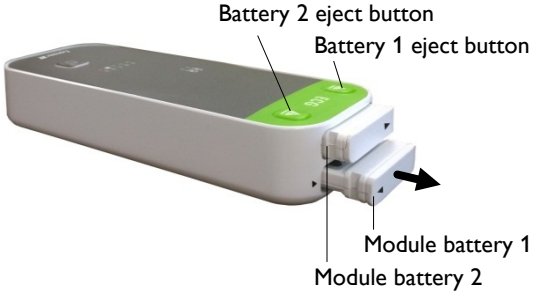
Charging Bay LEDs:

Status Indication
- No color (LED Off): Battery not inserted
- Green, solid: Full battery charge
- Green, flashing: Medium battery charge
- Yellow flashing: Low battery charge
- Red, solid: Faulty or defective battery
- Red, flashing: Reinsert the battery*
- Blue, solid: Reconditioning in progress
- Blue, flashing: Reconditioning recommended**

** If after attempting different batteries in other slots, this may indicate a charger malfunction; in this case, try removing batteries and disconnecting the charging station from power for 30 seconds, then restore power and retry.*

*** Will flash blue for 30 seconds to recommend reconditioning; if the battery is not moved to the reconditioning bay and the reconditioning button pushed within this time, then the battery will begin a normal charging cycle.*

Battery Operation



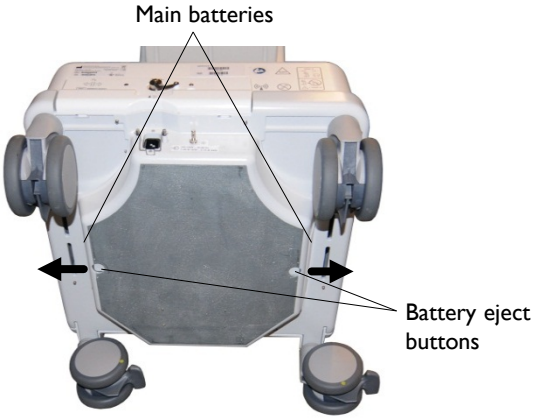
To remove module batteries:

1. Press a battery eject button on the wireless module.
2. Slide out the partially ejected module battery.

☑ ***Note:*** *The wECG module can use two batteries.*

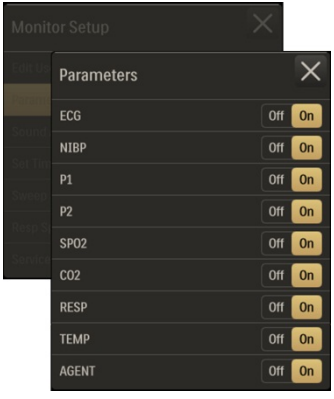
To remove main batteries:

1. On the underside of the cart, press a battery eject button. (If the battery does not release, apply a slight forward pressure to the associated battery while pressing the button.)
2. Slide out the partially ejected main battery.
3. Repeat the steps to remove the remaining battery from the other side of the cart.



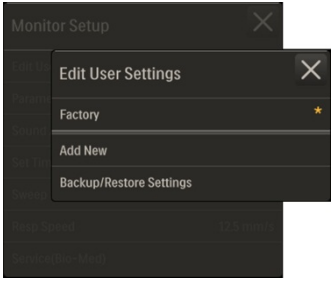
☑ ***Note:*** *See the IFU for information about the cart's internally-housed reserve batteries; for replacement information, contact technical support.*

Menus & Preparations for ECG Monitoring



To turn a parameter off or on:

1. Touch **Setup** and then **Monitor**.
2. Select **Parameters**.
3. Locate the parameter name on the menu and then touch **Off** or **On** for that parameter.



To store a user setup:

Save parameter, alarm, and patient type settings in memory for recall and use at a later time, as follows:

1. Configure the MR400 for desired settings.
2. Touch **Setup** and then **Monitor**.
3. Select **Edit User Settings**.
4. Select **Add New** then assign a unique file name to the setup and touch **Capture Settings**.

☑***Note:*** *If desired, touch the **Set to Default** to save the file as the initial power-on setup for the MR400.*

To recall a stored user setup:

1. Touch **User Settings**.
2. Select the name of the setup you want from the **Edit User Settings** menu.

☑***Note:*** *See the IFU for information about syncing the user settings with the IP5.*

ECG: Step 1 – Choose Lead Cables & Electrodes

15.1.

CV ECG lead cable:

- For patients weighing more than 10 kg (22 pounds)
- Best for female and overweight patients where standard electrode placement would be difficult
- *Version and part number:* AAMI: REF 989803193721; IEC: REF 989803193751

CV Quadtrode electrode

Part number:
REF 989803179041

Standard ECG lead cable:

- For patients weighing more than 10 kg (22 pounds)
- Quick application
- *Version and part number:* AAMI: REF 989803193731; IEC: REF 989803193761

Quadtrode electrode (standard)

Part number:
REF 989803179031

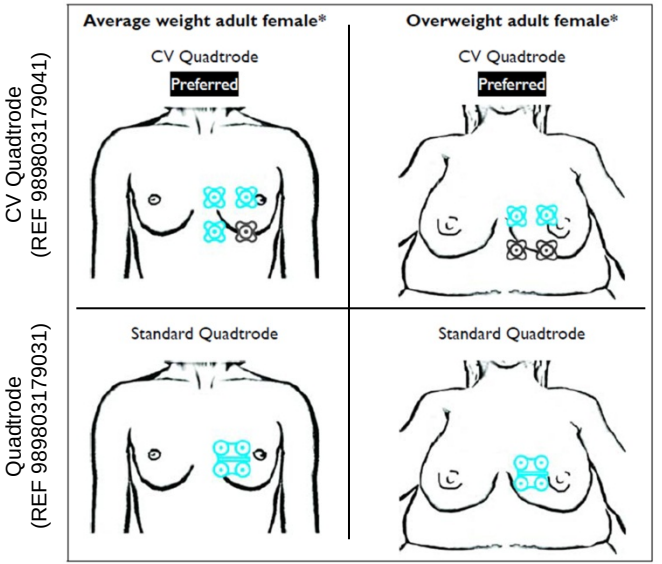
Neonatal ECG lead cable:

- For infants weighing less than 10 kg (22 pounds)
- Quick application
- *Version and part number:* AAMI: REF 989803193741; IEC: REF 989803193771

Neonatal Quadtrode electrode

Part number:
REF 989803179051

ECG: Step 2 – Select the Electrode Site: *Female*

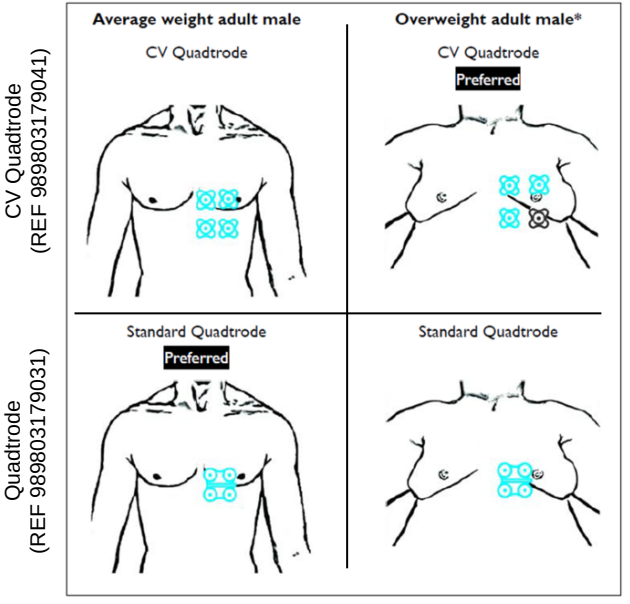


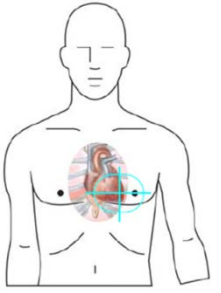
Shown above is the typical target area for the electrode sites on a female patient of normal weight.

Shown left, according to body size, are the suggested Quadtrodes and placements, including the preferred Quadtrode for the application.

**Where grayed Quadtrode images indicate placement sites against the ribcage under the breast.*

ECG: Step 2 – Select the Electrode Site: *Male*



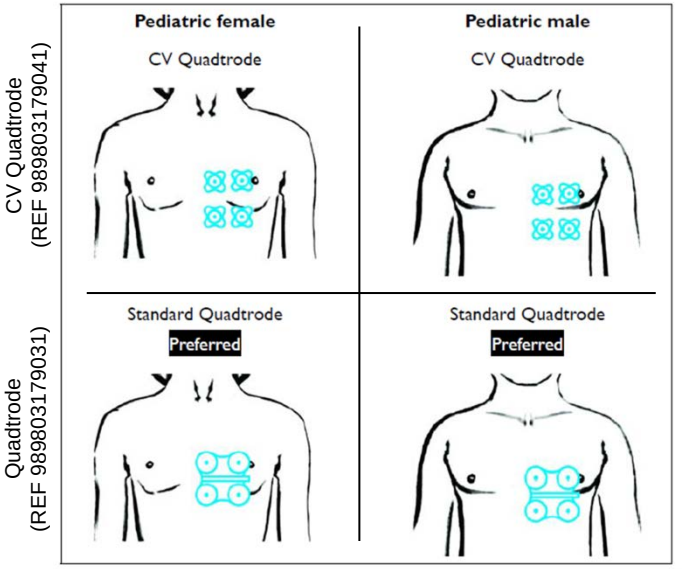


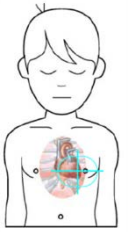
Shown above is the typical target area for the electrode sites on a male patient of normal weight.

Shown left, according to body size, are the suggested Quadtrodes and placements, including the preferred Quadtrode for the application.

**Where the grayed Quadtrode image indicates a placement site against the ribcage under the breast.*

ECG: Step 2 – Select the Electrode Site: *Pediatric*

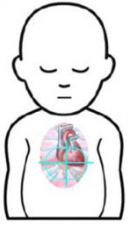




Shown above is the typical target area for the electrode sites on a pediatric patient of normal weight.

Shown left, according to gender, are the suggested Quadtrodes and placements, including the preferred Quadtrode for the application.

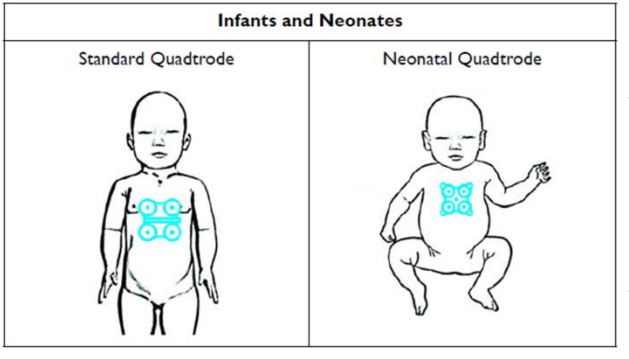
ECG: Step 2 – Select the Electrode Site: *Neonate*



Shown left is the typical target area for the electrode sites on infants and neonates.

Shown below are the suggested Quadtrodes and placements.

Quadtrode
(REF 989803179031)



Neo Quadtrode
(REF 989803179051)

ECG: Step 3 – Prep the Patient

Before prepping the patient:

Check the wECG module's battery and network channel indicators to ensure sufficient power and communications:

- Green = Power good (at least one indicator)
- Red = Power low
- ☼ Flashing = No communications

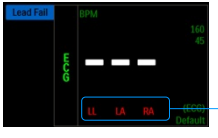
wECG module
(Channels 1-5: REF 989803192761)
(Channels 6-10: REF 989803194331)

Battery indicators, 1 & 2

Network channel indicator

Prepare the site, place the Quadtrode electrode and connect the lead cable:

- Check the date on the Quadtrode electrode packaging and verify that the electrode is not past expiration.
- Shave any hair from the patient's application site.
- <u>Do not use alcohol to prep the skin!</u>
- Abrade the skin:
  - Apply a sufficient amount of Skin Prep Gel (REF 989803152291) to a gauze pad or cloth;
  - Use this to rub the application site (the skin may turn pink); and then,
  - Wipe off any excess gel.
- Apply the Quadtrode electrode to the patient.
- Connect the ECG lead cable to the Quadtrode electrode.
- Check for any **Lead Fail** indicators (displayed in the ECG vital sign box) and then, if necessary, recheck the connections.



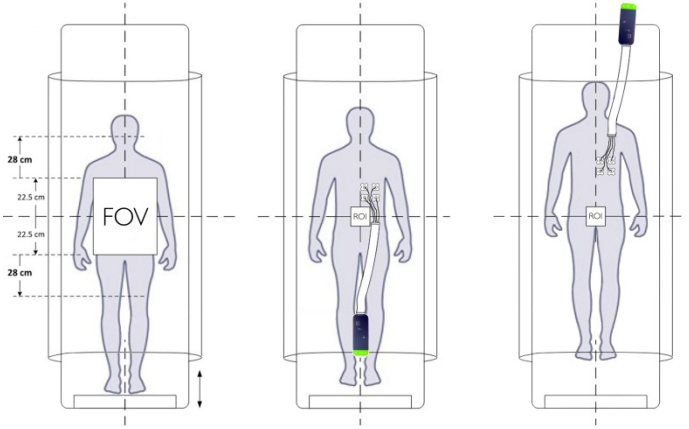
Lead Fail indicators

ECG: Step 3 – Prep the Patient (continued)

Place the ECG lead cable and wECG module

Depending on the region of interest (ROI) and the largest field of view (FOV) provided by the MRI scanner:

- Keep the ECG lead cable straight (as “U” and “S” shaped loops can increase the heating risk).
- For static field (B0) compliance, keep the wECG module at least 28 cm (11 inches) outside the FOV.
- Place the wECG module on or near the patient, and as close to the bore iso-center as possible. (If the module can be placed outside the bore, iso-center positioning is not necessary.)
- Place the wECG module on a cushioned surface to minimize MR vibrations.



☑ ***Note:*** *Refer to the Instructions for Use manual for more details regarding the wECG module and its placement.*

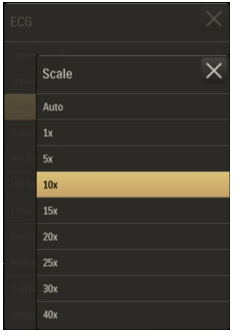
ECG: Step 4 – Check the Signal

Evaluate the ECG signal strength before the patient enters the scanner, the best time to make corrections

Check for the qualified minimum strength signal

Observe the displayed ECG waveform and ensure that the QRS complex is approximately twice the size of the scale indicator at any given **Scale** setting:

- In the **ECG** menu, typically, use a **Scale** setting of **5x** or **10x**. *(**Scale** only changes the magnification used to display the waveform; it does not improve signal strength.)*
- The **Trace A Lead** (lead configuration) default is **II**.



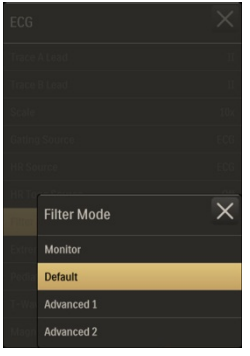
If the displayed QRS complex is less than optimum:

1. Ensure a Quadtrode electrode was used--verify its expiration date, quality and packaging.
2. Try other lead configurations (e.g., **I** or **III**) to account for patient variability.
3. Remove the Quadtrode electrode and then prep the site again.

ECG: Step 5 – Complete the Setup

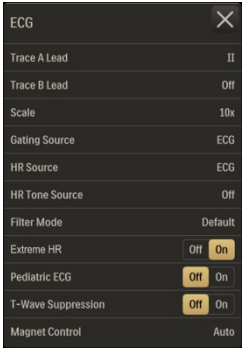
Choose the Filter Mode that best suits the application and MRI system:

- **Monitor** meets AAMI and IEC specifications, best filter for use outside of the magnetic field.
- **Default** provides best performance for the majority of MRI sequences on 1.5T and 3.0T MR systems.
- **Advanced 1** provides the best performance on 1.5 and 3.0T MR systems for more challenging MRI sequences such as neurological and cardiovascular scans.
- **Advanced 2** provides an alternative for more challenging MRI sequences such as neurological and cardiovascular scans.



Choose T-Wave Suppression if gating elevated T-waves (which are sometimes present on high field MRI systems or with high electrode placements):

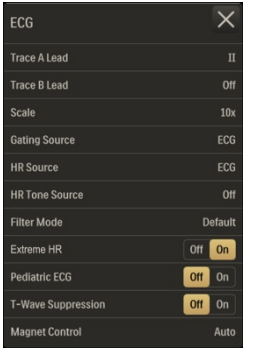
- **Off** provides no suppression.
- **On** provides for accurate gating when an unusually high T-wave amplitude, relative to the R-wave, is present.



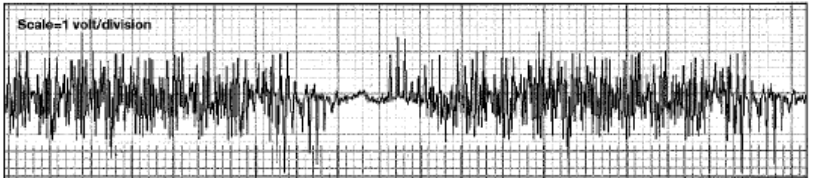
Complete the Setup (continued)

☑ Notes:

- *Some pediatric patients have a narrow QRS complex, which may not be detected by the heart rate counter.* ***Pediatric ECG*** *is automatically enabled when* ***Patient Type*** *is set to* ***Pediatric*** *or* ***Neo****, and is optional when set to* ***Adult****.*
- *It may be necessary to cycle the filter modes and/or lead configuration views throughout an exam to account for system variability and/or the scan sequence:*
  - *For cases requiring cardiac gating, start with* ***Filter Mode*** *set to* ***Advanced 1*** *and* ***Trace A Lead*** *set to* ***II****. Switch the* ***Filter Mode*** *if gradient noise is noticed. If an artifact is still present, check the signal strength and try setting* ***Trace A Lead*** *to* ***I*** *or* ***III****.*
  - *For cases not requiring cardiac gating, start with* ***Filter Mode*** *set to* ***Default*** *and* ***Trace A Lead*** *set to* ***II****. Switch the* ***Filter Mode*** *if gradient noise is noticed. If an artifact is still present, check the signal strength and try setting* ***Trace A Lead*** *to* ***I*** *or* ***III****.*



Minimizing ECG Waveform Noise



Common Causes of Noise:

- Use of alcohol-based products during patient prep
- Use of an expired or dried-out Quadtrode electrode
- Use of an incorrect type or damaged ECG lead cable
- Improper Quadtrode electrode placement, including excessive distance between CV Quadtrode electrodes
- Improper connection of ECG lead cable to Quadtrode electrode contacts
- Routing the ECG lead cable adjacent to the body coil or underneath an extremity coil
- Placing the MR400 inside the 5000 gauss line
- Placing the wECG module inside the field of view
- MR vibrations affecting the wECG module
- Use of an incorrect **Filter Mode**
- Use of **Monitor** as the **Filter Mode** for the scan sequence
- Scan sequence parameters

Wireless SpO2

Choose the appropriate patient site and attachment:

- Select the clip or grip size best suited for the appropriate patient limb (see table below).
- Optimum fit is achieved when both sensor windows are opposite each other while covering skin or nail.

Quick Connect SpO2 Attachment	**Neonate (2.2 – 11 pounds [1 – 5 kg])** 15.2.1.	**Infant (11 – 33 pounds [5 – 15 kg])** 15.2.2.	**Pediatric (22 – 110 pounds [10 – 50 kg])** 15.2.3.	**Adult (88 pounds [40 kg] or more)** 15.2.4.
Clip, Adult (REF 989803166531)	–	–	–	Finger
Clip, Pediatric (REF 989803166541)	–	–	Finger	–
Grip, Adult, 20/box (REF 989803166551)	–	–	–	Finger (toe)[2]
Grip, Ped, 20/box (REF 989803166561)	–	–	Finger (toe)[2]	–
Grip, Infant, 20/box (REF 989803166571)	–	Finger (toe)[2]	–	–
Grip, Neo, 20/box (REF 989803166581)	Foot (hand/wrist)[1]	–	–	–

1) Preferred application site: foot; alternative site: hand or wrist

2) Preferred application site: any single finger onto which the attachment fits properly; alternative: any toe onto which the attachment fits properly

Wireless SpO2

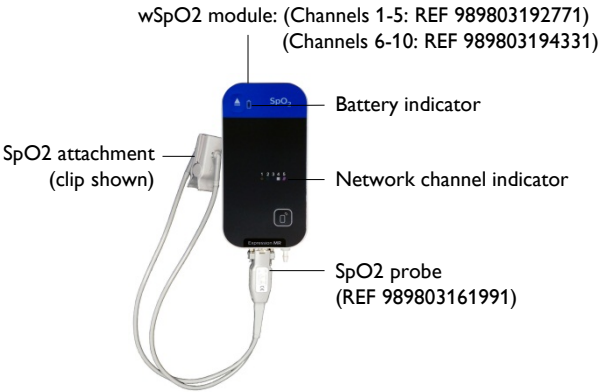
Ensure that the wSpO2 module is set to the correct wireless network channel before prepping the patient

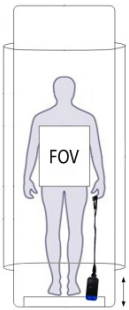
Connect the SpO2 attachment to the patient site

Connect the attachment to the SpO2 probe and then place the attachment on the patient:

Check the wSpO2 module's battery and network channel indicators to ensure that good power and communications exist:

- Green = Battery power good
- Red = Battery power low
- ☼Flashing = No communications





Place the wSpO2 module for scanning:

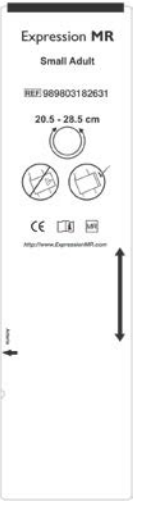
- Position the wSpO2 module on or near the patient and as close as possible to the bore opening, placing it outside the bore if possible;
- Keep the wSpO2 module and SpO2 probe outside the field of view;
- Put the wSpO2 module on a cushioned surface and cover the SpO2 attachment site with opaque material (blanket, etc.).

***Note:** Refer to the Instructions for Use manual for more details regarding the wSPO2 module and its placement.*

NIBP

Choose an NIBP cuff for the appropriate patient site (where cuffs operate best around a site that allows both Velcro sides to completely meet):

- NIBP Cuff, Single Lumen, Infant (REF 989803182611)
- NIBP Cuff, Single Lumen, Pediatric (REF 989803182621)
- NIBP Cuff, Single Lumen, Small Adult (REF 989803182631)
- NIBP Cuff, Single Lumen, Adult (REF 989803182641)
- NIBP Cuff, Single Lumen, Adult-L (REF 989803182651)
- NIBP Cuff, Single Lumen, Lrg Adult (REF 989803182661)
- NIBP Cuff, Single Lumen, Lrg Adult-L (REF 989803182671)
- NIBP Cuff, Single Lumen, Thigh (REF 989803182681)
- NIBP Cuff, Single Lumen, Infant, Disp (REF 989803182511)
- NIBP Cuff, Single Lumen, Pediatric, Disp (REF 989803182521)
- NIBP Cuff, Single Lumen, Small Adult,Disp (REF 989803182531)
- NIBP Cuff, Single Lumen, Adult, Disp (REF 989803182541)
- NIBP Cuff, Single Lumen, Adult-L, Disp (REF 989803182551)
- NIBP Cuff, Single Lumen, Lrg Adult, Disp (REF 989803182561)
- NIBP Cuff, Single Lumen, Lrg Adult-L,Disp (REF 989803182571)
- NIBP Cuff, Single Lumen, Thigh, Disp (REF 989803182581)
- NIBP Cuff, Single Lumen, Neo #1, Disp (REF 989803183171)
- NIBP Cuff, Single Lumen, Neo #2, Disp (REF 989803183181)
- NIBP Cuff, Single Lumen, Neo #3, Disp (REF 989803183191)
- NIBP Cuff, Single Lumen, Neo #4, Disp (REF 989803183201)
- NIBP Cuff, Single Lumen, Infant #5, Disp (REF 989803183211)



Choose an interconnect hose, then attach it to the cuff and NIBP port:

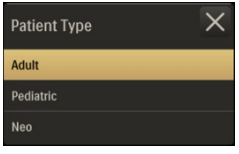
- Adult Pressure Interconnect Hose (REF 989803183221)
- Neonatal Pressure Interconnect Hose (REF 989803183231)

NIBP – Auto Mode

Step 1: Select the patient type:

a) Touch **Patient Type**

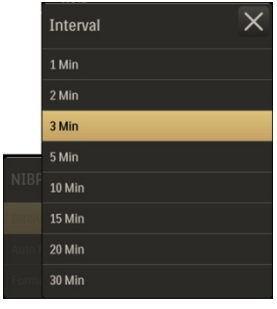
b) In the **Patient Type** menu, touch the desired type.



Step 2: Set the measurement interval:

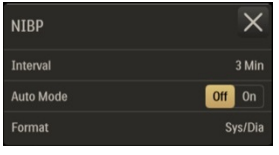
a) Touch **NIBP Interval**.

b) In the **Interval** menu, touch the desired time.



Step 3: Set the mode:

In the **NIBP** menu, locate **Auto Mode** and touch **On**.



Step 4: Begin the measurement:

Touch **NIBP Start/Stop**.

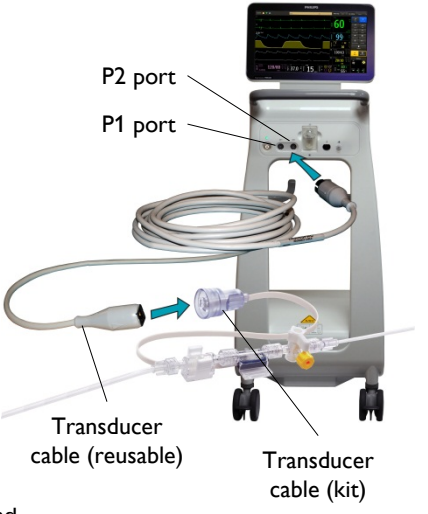
NIBP Start/Stop key

☑ ***Note:*** *Automatic NIBP measurements will be suspended if the MR400 is placed in suspend mode.*

IBP *(optional equipment)*

Use the dedicated IBP transducer cable and choose an IBP kit appropriate for the patient type:

- Expression MR IBP Transducer Cable, 5 Ft (REF 989803194601)
- Expression MR IBP DPT KIT, A/P, Box 20 (REF 989803194631)
- Expression MR IBP DPT KIT, I/N, Box 20 (REF 989803194641)



According to the patient type, setup the transducer monitoring kit according to the IFU found in each kit:

1. Attach the transducer cable (REF 989803194601) to the P1 (or P2) port and then connect it to the kit's transducer cable.
2. Mount the transducer to an MR IV pole then purge the air from the monitoring line and prime the transducer.
3. Zero and level the transducer.
4. Connect the kit to the patient.
5. Fast flush the transducer.
6. Inspect for leaks.
7. In the MR room, ensure that the transducer is level with the heart and that the transducer interface cabling is not looped or touching the patient then re-zero the transducer.

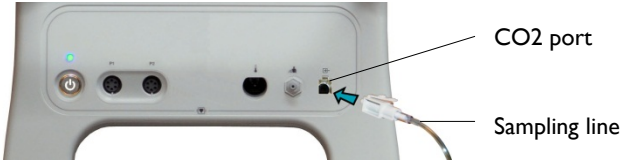
EtCO2 (LoFlo, optional equipment)

Choose an appropriate LoFlo accessory for the application and patient (according to the type and condition of the patient):

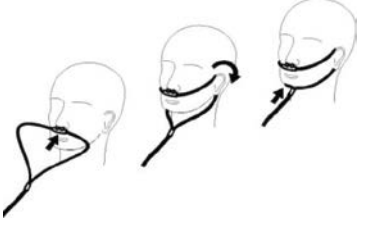
- LoFlo Sample Line, Adult Cannula, Box 20 (REF 989803183241)
- LoFlo Sample Line, Ped. Cannula, Box 20 (REF 989803183251)
- LoFlo Sample Line, Neo. Cannula, Box 20 (REF 989803183261)
- LoFlo Line, Adu Dvd Cannula,Box 20 (REF 989803183271)
- LoFlo Line, Ped Dvd Cannula, Box 20 (REF 989803183281)
- LoFlo Line, Adu Airway Adpt, Box 20 (REF 989803183291)
- LoFlo Sample Line, Adult Cannula,Box 100 (REF 989803185331)
- LoFlo Sample Line, Ped Cannula, Box 100 (REF 989803185341)
- LoFlo Sample Line, Neo Cannula, Box 100 (REF 989803185351)
- LoFlo Line, Adu Dvd Cannula, Box 100 (REF 989803185361)
- LoFlo Line, Ped Dvd Cannula, Box 100 (REF 989803185371)
- LoFlo Line Adu Airway Adpt, Box 100 (REF 989803185381)

EtCO2 (LoFlo, optional equipment)

Connect the CO2 sample line to the CO2 port on the MR400



Place the cannula on the patient



If using the airway adapter, place it at the proximal end of the airway circuit — between the elbow and the breathing circuit wye

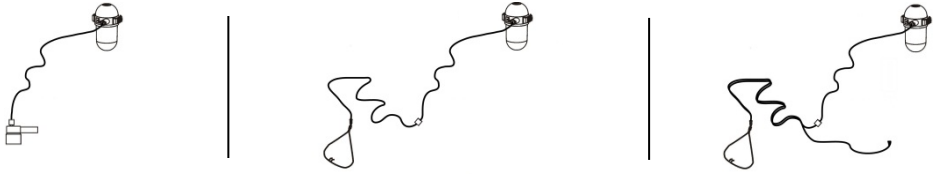
EtCO2 / Agents Gas Analysis (AGENT, optional equipment)

Choose an appropriate AGENT accessory for the application and patient (according to the type and condition of the patient):

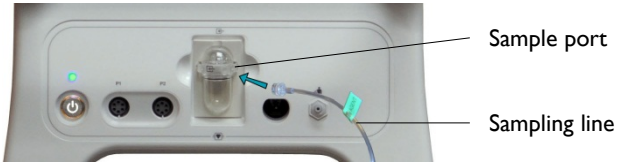
- Cannula, Disp, Adult (REF 989803152561)
- Cannula, Disp, Adult (REF 989803152601)
- Cannula, Disp, Int Inf (Divided) (REF 989803152621)
- Cannula, Disp, Ped (Divided) (REF 989803152631)
- Cannula, Disp, Infant (Divided) (REF 989803152611)
- Cannula, Disp, Int Infant (REF 989803152591)
- Cannula, Disp, Ped (REF 989803152571)
- Cannula, Disp, Infant (REF 989803152581)
- Kit, Sample, Agents, 3160 (REF 989803152661)
- Kit, Disposable Water Trap, 3160 (REF 989803152671)

EtCO2 / Agents Gas Analysis (AGENT, optional equipment)

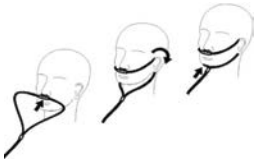
Choose a pneumatic circuit according to the patient and monitoring needs



Connect the sampling line to the sample port on the MR400



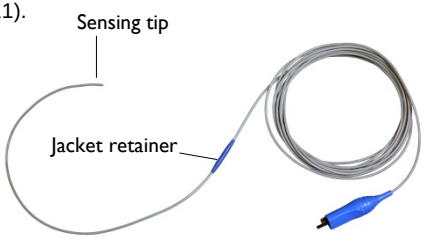
Place the cannula on the patient



Temperature (optional equipment)

Make a temperature measurement:

1. Thoroughly clean and disinfect the temperature sensor (REF 989803194511).
2. Inspect the sensor for damage before use.
3. If making esophageal or rectal temperature measurements, place the sensor in a jacket (REF 989803178181), ensuring that the jacket tabs extend over the sensor's jacket retainer and that no excess space exists at the jacket tip.
4. Place the sensor at the application site (for body temperature measurements, insert the sensing tip to an appropriate depth).
5. Begin monitoring, allowing time for the measurement to stabilize.
6. When the procedure is complete, remove the sensor from the patient.
7. If a jacket was used, grasp both jacket tabs to remove it from the sensor and then discard the jacket in an environmentally safe manner.



FlexTEMP II Sensor

Understanding the displayed messages:

- **UND**: The sensor is reading a temperature below 69.8º F (20º C).
- **OVR**: The sensor is reading a temperature above 111.2º F (44º C).

☑ ***Notes:***

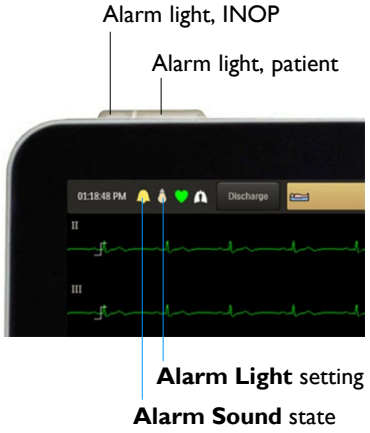
- *The temperature sensor contains fiber-optics and must be handled with care.*
- *Use only FlexTEMP Jackets to cover the temperature sensor.*
- *Surgical lubricant (REF 989803168891) can facilitate temperature sensor insertion into the patient.*
- *Clean the temperature sensor after use, removing debris with soapy water then disinfecting with Caviwipes.*

Alarms – Priorities and Indications

Alarms are prioritized with visible and audible indications

Alarm and type*	Displayed color	Alarm Light indication	Audio tones
High, priority patient alarms	Red	Flashing, 90 times / minute	c c c – c c
Medium, patient alarms	Yellow	Flashing, 45 times / minute	c c c
INOP, status and technical alarms	Blue	Steady	e c

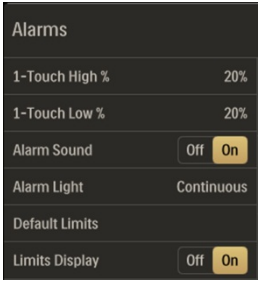
**When applicable, alarm flags containing alarm messages are displayed*



The Alarm Light and Alarm Sound settings (in the Alarms menu) allow the MR400 to provide 360° indications during an alarm condition

Alarm Light setting and symbol	Alarm Sound state and symbol*
Continuous	Alarm audio armed
Temporary	Alarm audio paused
Off	Alarm audio off

The **Alarm and the **Alarm Pause** keys control the alarm sound when **Alarm Sound** is **On**.*



Alarm Flags and Advanced Clinical Alarms

Alarm flags:

- Are displayed in the color of the alarm's priority
- Are located adjacent to the associated parameter's vital sign box
- Allow fast assessment of the alarm state of the patient and the MR400
- Provide a consistent alarm messaging method across all vital signs

Advanced Clinical Alarms:

- Are high priority alarms
- All (except Low O2) are adjustable with on / off and custom settings

Alarm type	**Parameter / Condition**	**Menu option(s)**
Apnea	CO2 RESP / Critical loss of breathing	**RESP > Apnea** and **RESP > Apnea Time**
Desaturation	SPO2 / Critically low oxygenation of blood	**SPO2 > Desat** and **SPO2 > Desat Time**
Extreme Bradycardia	HR / Critically slow heart rate	**ECG > Extreme HR**
Extreme Tachycardia	HR / Critically fast heart rate	
Low O2	AGENT / Less than 18% inspired oxygen	**N/A (Fixed setting, not adjustable)**

Alarms – Automatic Adjustment

Allow the MR400 to calculate then adjust the alarm limit settings using baseline measurements *(Use when patient vital signs are steady to automatically adjust the alarm limit settings specifically for that patient.)*

1. Touch **Setup** and then touch **Alarms**.
2. On the **Alarms** menu, ensure that the **1-Touch High %** and the **1-Touch Low %** settings are appropriate for calculation use; otherwise, change the percentage(s).
3. Touch **1-Touch Alarms**.
4. Observe the displayed alarm limit settings for all parameters then manually adjust any setting as needed.

☑ ***Note:*** *Consider the following operating characteristics when choosing **1-Touch Alarms**:*

- *If a patient's monitored value is so high or low that it exceeds an alarm limit range during calculation, then the alarm limit will be set to the highest or lowest possible value in the range (but not off). In this case, manual adjustment will be required afterward to turn off an alarm limit.*
- *Calculations will almost always result in a lower alarm limit setting for SpO2 than the default value.*

Alarms – Manual Adjustment

Manually adjust multiple alarm settings *(Use when the alarm limit settings for more than one parameter needs manual adjustment.)*

1. Touch **Setup** and then touch **Alarms**.
2. Locate then touch the desired parameter.
3. Depending on the setting that you want to adjust, touch **Low** or **High.**
4. Use the **Alarms** keypad to adjust the setting.
5. To change additional settings, repeat steps 2, 3, and 4.
6. Touch the **Enter** button on the **Alarms** keypad.

Manually adjust targeted alarm settings *(Use when the alarm limit settings for one parameter needs manual adjustment.)*

1. Touch the alarm limits in the VS box of the desired parameter.
2. Depending on the setting that you want to adjust, touch **Low** or **High.**
3. Use the **Alarms** keypad to adjust the setting.
4. To change the other setting, repeat steps 2, 3, and 4.
5. Touch the **Enter** button on the **Alarms** keypad.

Trending

To display trends data (collected at a **Data Interval** rate of up to once per minute (**1 Min**) and stored for up to 12 hours whenever a parameter is turned on):

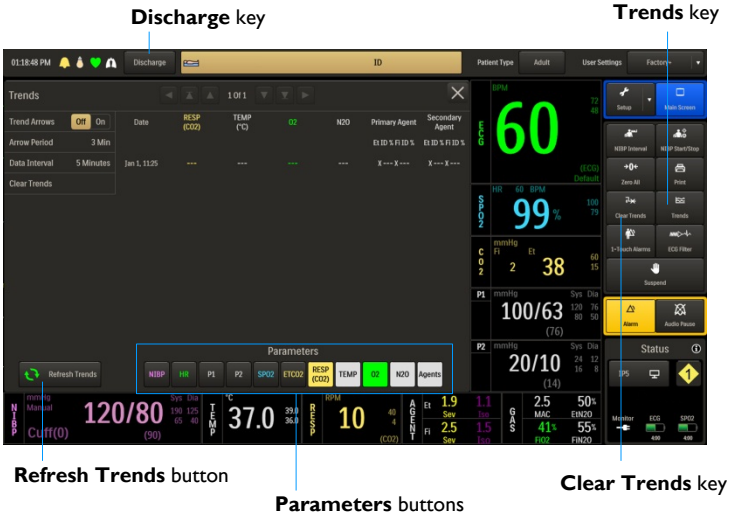
1. Touch **Trends**.
2. Select the trend(s) to be examined by touching the **Parameters** button(s).
3. Touch **Refresh Trends** anytime to update the displayed data.

To display trend arrows (graphical representations of a vital sign's trend):

1. Touch **Trends**.
2. In the **Trends** menu, locate **Trend Arrows** and touch **On**.

To delete trend data:

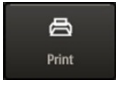
- Touch **Clear Trends**.
- (Data are also deleted as part of the patient discharge process when **Discharge** is pressed.)



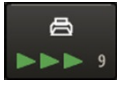
☑ ***Note:*** *The displayed trends screen represents a query into the trends data and has no affect on the way that the data is collected.*

Remote Printer Status Indications

The symbol displayed on the **Print** key indicates the state of the remote printer.

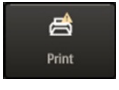


Printer Ready
(The printer is ready for printing)

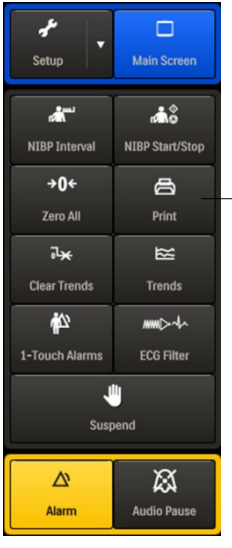


Printing in Progress
(Remote printing is in progress and the time remaining until completion)

No Printer Available
(No printer is installed; otherwise, there is a possible communications problem)



Printer Not Ready
(The printer is available, but currently unable to print)



Gating

Synchronizes the scanner with the monitored body functions from the MR400 to produce artifact-free MR images.

Gating Selection (Wired)				
	Siemens Gating Interface	**GE Gating Interface**	**Hitachi / Toshiba Gating Interface**	**Universal / Vector Gating Interface**
REF	989803152831	989803152821	989803152851	989803195521
Compatible scanners	• Aera • Avanto • Espree • Essenza • Prisma • Skyra • Spectra • Symphony • Trio • Verio	• Brivo (MR355) • Discovery (MR750/ MR750w) • Excite • Optima (MR360/MR360 Advance/MR430s/ MR450/MR450w) • Signa	Hitachi • Oasis • Echelon • Oval • Airis • Altaire • MRP7000 Toshiba • Vantage • Titan • Excelart • Opart	Philips • Achieva • Intera • Ingenia Universal gating cable • Use with any MRI system featuring external gating connections


PHILIPS

MR400 *Questions*

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This quick reference guide is intended to be used in conjunction with the *Expression Model MR400 MRI Patient Monitoring System* Instructions for Use; see the IFU for more details. For additional questions, please contact your sales representative or technical support. (International customers: Please contact your Key Market representative, for a current listing, go to www.invivocorp.com)

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