Hemodynamics Review Program

QP-033P

esCCO Program

QP-034P

0614-905804E

NIHON KOHDEN

In order to use this product safely and fully understand all its functions, make sure to read this manual before using the product.

Keep this manual near the instrument or in the reach of the operator and refer to it whenever the operation is unclear.

This product stores personal patient information. Manage and operate the information appropriately.

Patient names on the screen shots and recording examples in this manual are fictional and any resemblance to any person living or dead is purely coincidental.

The contents of this manual are subject to change without notice.

If you have any comments or suggestions on this manual, please contact us at: www.nihonkohden.com

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CE
0086

Contents

Conventions Used in this Manual

Warnings, Cautions and Notes

Warnings, cautions and notes are used in this manual to alert or signal the reader to specific information.

WARNING

A warning alerts the user to possible injury or death associated with the use or misuse of the instrument.

CAUTION

A caution alerts the user to possible injury or problems with the instrument associated with its use or misuse such as instrument malfunction, instrument failure, damage to the instrument, or damage to other property.

NOTE

A note provides specific information, in the form of recommendations, prerequirements, alternative methods or supplemental information.

Explanation of the Symbol in this Manual and Product

Symbol	Description
CE 0086	The CE mark is a protected conformity mark of the European Community. Products marked with this symbol comply with the requirements of the Medical Device Directive 93/42/EEC.

General

The QP-033P hemodynamics review program and QP-034P esCCO program is software for monitoring estimated continuous cardiac output (esCCO) of a patient. QP-033P can also display a hemodynamics graph on the Review window to show the circulation condition of the patient.

	QP-033P	QP-034P
esCCO monitoring	Yes	Yes
Hemodynamics graph	Yes	No

NOTE

When the QP-033P hemodynamics review program is installed, the GRAPH 3 page of the TREND window is not available.

When the QP-033P hemodynamics review program is installed, the HEMO GRAPH and MARK function keys are available on the KEYS window of the SYSTEM SETUP window. For the KEYS window, refer to "KEYS Window" in Section 3 of the bedside monitor administrator's guide. For the MARK key function, refer to "TREND + TARGET Window" section in this manual.

To monitor esCCO, you need to monitor ECG, SpO_2, PWTT, blood pressure (NIBP or IBP) and either CO, CCO or enter patient information (height, weight, age and gender) depending on the calibration procedure.

WARNING

Do not diagnose a patient based only on data acquired by the bedside monitor. Overall judgement must be performed by a physician who understands the features, limitations and characteristics of the bedside monitor and by reading the biomedical signals acquired by other instruments.

CAUTION

esCCO monitoring has not been validated on neonates.

CAUTION

Only use Nihon Kohden specified electrodes, probes, transducers, thermistors and catheters. Otherwise, the maximum performance from the monitor cannot be guaranteed.

NOTE

- esCCO cannot be monitored with the AY-631P/633P/651P/653P input unit and BSM-1733/1753 bedside monitor.
- esCCO cannot be monitored on the BSM-3532/3552/3733/3753 bedside monitor.
- esCCO must be calibrated before monitoring esCCO.

- The screens in this manual are for BSM-6000 series bedside monitor.

This manual only describes the features and functions of esCCO monitoring and the hemodynamics graph window. For details on the bedside monitor, refer to the documents provided with the BSM-3000 or BSM-6000 series bedside monitor.

Preparing for esCCO Monitoring

Preparation Flowchart

1. Register the QP-033P Hemodynamics Review Program or QP-034P esCCO Program.

2. Change the necessary settings on the esCCO page of the PARAMETERS window in the SYSTEM SETUP window. Check that <esCCO MEASUREMENT> is set to On.

3. Select ON for <esCCO MEASUREMENT> on the OTHER window of the esCCO window.

4. Check that the patient information (height, weight, age and gender) is entered.

5. Depending on the calibration procedure, do either a) or b). For details on the calibration, refer to the “Calibration” section.

   a) Set up the catheter and system and monitor CO. Refer to Section 9 of the BSM-3000 or BSM-6000 series bedside monitor User’s Guide Part II for details.

   b) Connect a CCO or PiCCO monitor to the bedside monitor with the QF interface/IF communication cable.

6. Depending on the calibration procedure, do either a) or b). For details on the calibration, refer to the “Calibration” section.

   a) Set up the catheter and system and monitor IBP.

   b) Connect the air hose and cuff and monitor NIBP.

7. Monitor ECG and SpO_2.

8. Perform calibration.

9. Start monitoring esCCO.

For details on monitoring ECG, SpO_2, IBP/NIBP, PWTT and CO, refer to the BSM-3000 or BSM-6000 series bedside monitor User’s Guide Part II.

NOTE

Delete the data of the previous patient before monitoring esCCO.

Registering the Program

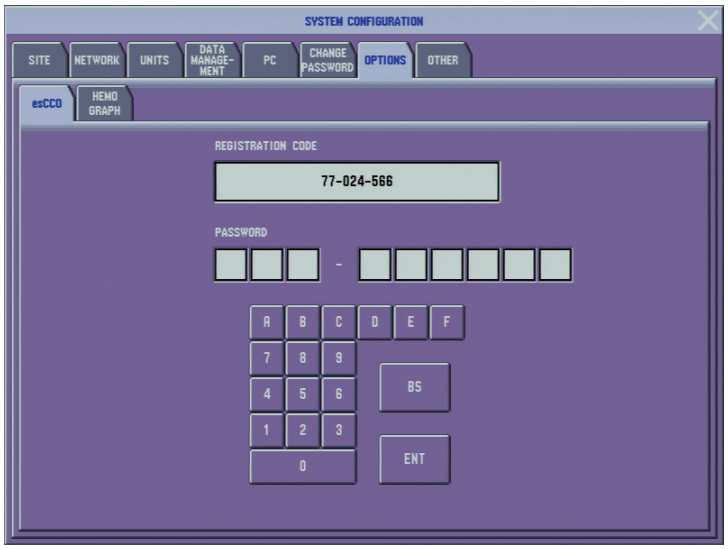
An unlock code must be obtained from Nihon Kohden to use the program. Tell us the registration code on the OPTIONS window of the SYSTEM CONFIGURATION screen and we will tell you the unlock code. Use the registration form at the end of the Administrator's Guide.

NOTE

- The QP-033P hemodynamics review program and QP-034P esCCO program cannot be used on the BSM-6000A series bedside monitor.
- When using the BSM-1763 or BSM-1773 bedside monitor as an input unit for the BSM-6000K series bedside monitor:
  - Also register the esCCO software for the BSM-1763 or BSM-1773. Refer to the QP-172P esCCO program Operator's Manual.
  - Set <DATA TRANSPORT USING INPUT UNIT> on the DATA MANAGEMENT window of the SYSTEM CONFIGURATION screen to ENABLE.

1. Display the SYSTEM CONFIGURATION screen. Refer to Section 2 of the Administrator's Guide for details.

2. Display the esCCO or HEMO GRAPH page of the OPTIONS window.
   - esCCO page: for registering QP-034P
   - HEMO GRAPH page: for registering QP-033P



3. Note the registration code in the REGISTRATION CODE box on the window.

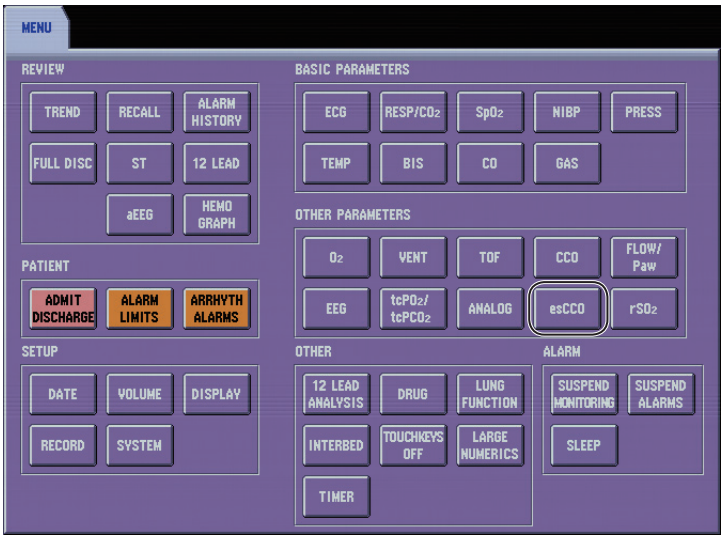
4. Fill in the registration form and fax or send it to your Nihon Kohden representative.

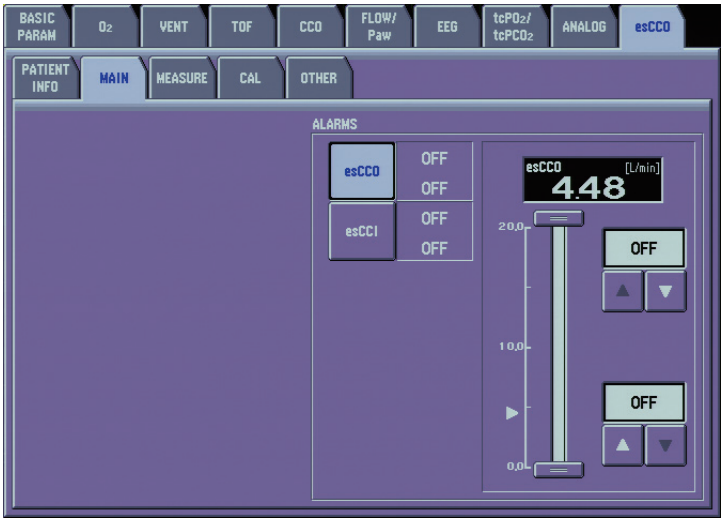
5. After you receive the unlock code, display the esCCO or HEMO GRAPH page of the OPTIONS window on the SYSTEM CONFIGURATION screen and enter the code number in the PASSWORD box using the number and alphabet keys on the screen. When the ENT key is touched, the lock is unlocked.

Displaying the esCCO Window

1. Display the MENU window.
   - Press the [Menu] key on the monitor.
   - Press the [MENU/HOME] key on the remote control.
   - Touch the MENU function key on the screen.

2. Touch the “esCCO” key. The esCCO window appears.





Touching the esCCO numeric data on the home screen also displays the esCCO window:

3. Close the window.
   - Press the [Home] key on the monitor or data acquisition unit.
   - Press the [MENU/HOME] key on the remote control.
   - Touch the HOME function key on the screen.
   - Touch the waveform or current trendgraph display area on the home screen.

Changing Settings on the SYSTEM SETUP Window

Turning esCCO Monitoring On or Off

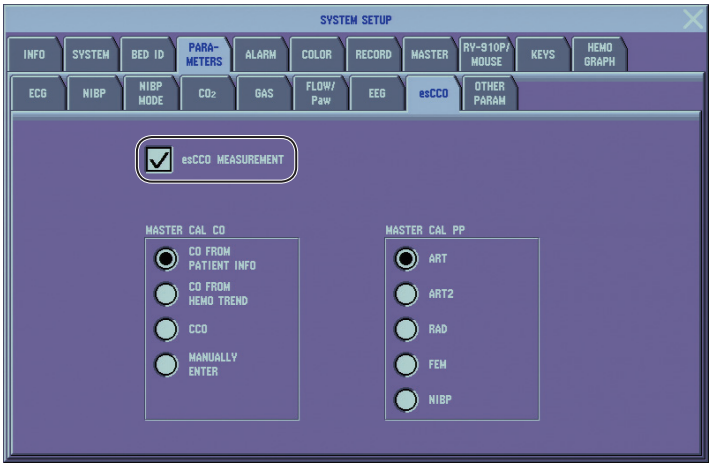
1. Press the [Menu] key on the front panel to display the MENU window.

2. Touch the SYSTEM key on the MENU window.

3. Enter the password. For details on the password, refer to the BSM-3000 or BSM-6000 series bedside monitor Administrator's Guide.

4. Touch the PARAMETERS tab → esCCO tab.

5. Select On or Off in the <esCCO MEASUREMENT> box to turn esCCO monitoring on or off.



6. Press the [Home] key to return to the home screen.

Changing Master Calibration Parameters

There are master CO and PP (pulse pressure) parameters for calibration. You can still select CO and PP parameters for calibration on the CALIBRATION window but these change back to the master parameters when:

- The monitor power is off for more than 30 minutes when <SHOW ADMIT CONFIRMATION WINDOW> is set to "Off" in the SYSTEM CONFIGURATION screen.
- The patient is admitted or discharged.
- The "PATIENT TYPE" setting is changed on the ADMIT DISCHARGE window.

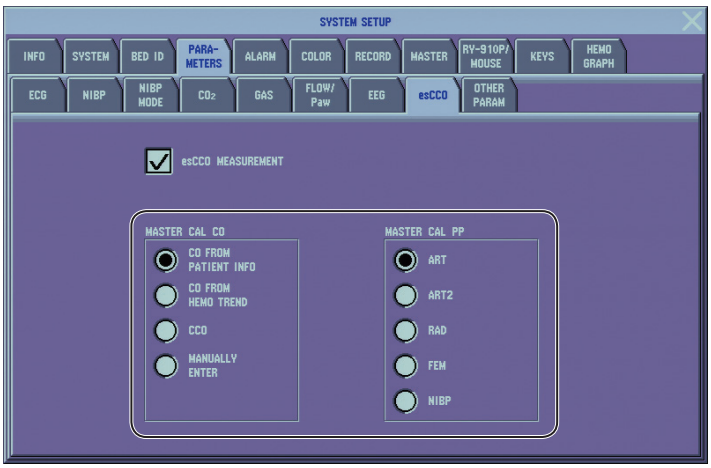
1. Press the [Menu] key on the front panel to display the MENU window.

2. Touch the SYSTEM key on the MENU window.

3. Enter the password. For details on the password, refer to the BSM-3000 or BSM-6000 series bedside monitor Administrator's Guide.

4. Touch the PARAMETERS tab → esCCO tab.

5. Select the master parameter for CO and PP for calibration.



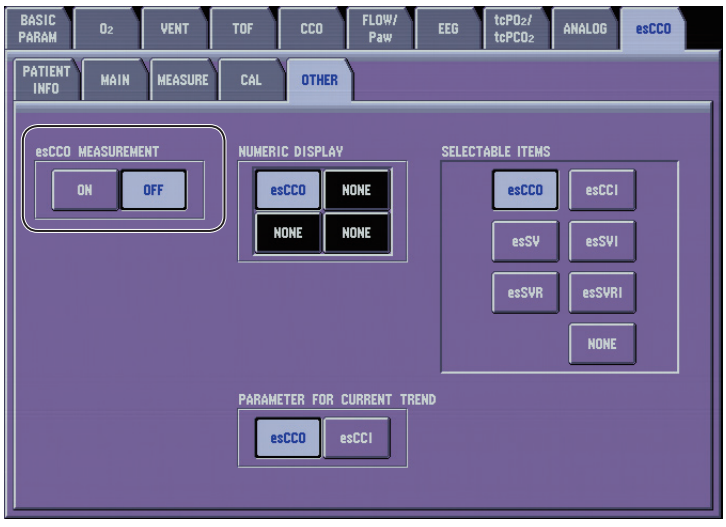
6. Press the [Home] key to return to the home screen.

Turning esCCO Monitoring On or Off on the OTHER Window

The <esCCO MEASUREMENT> setting appears on the OTHER window only when <esCCO MEASUREMENT> on the PARAMETERS – esCCO page of the SYSTEM SETUP window is set to On. Refer to the previous “Changing Settings on the SYSTEM SETUP Window” section for details.

1. Display the OTHER window of the esCCO window.
   Press the [Menu] key → esCCO key → OTHER tab.

2. Select ON or OFF in the <esCCO MEASUREMENT> box to turn esCCO monitoring on or off.



3. Press the [Home] key to return to the home screen.

Checking the Patient Information

The patient information (height, weight, age and gender) displayed on the PATIENT INFO window of the esCCO window are the values entered for the patient information on the ADMIT DISCHARGE window. Because this data is used in the calculation for BSA and esCCO monitoring, check that it is correct before monitoring esCCO.

When these values are changed, the settings on the ADMIT DISCHARGE window also change.

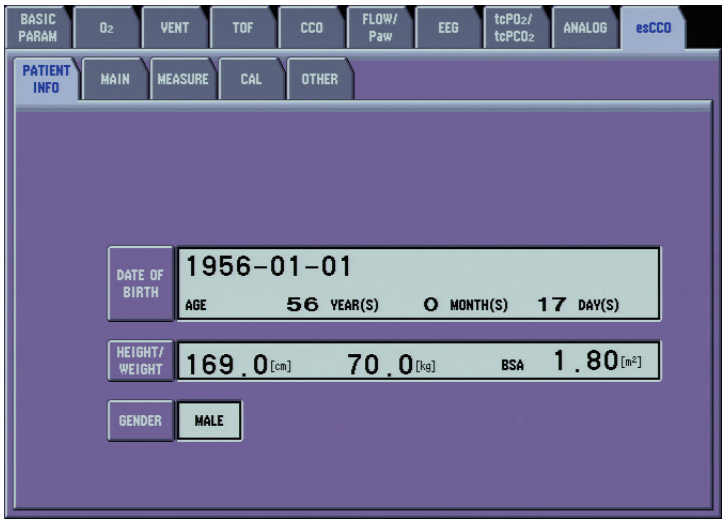
The units for height (cm or inch) and weight (kg or lbs) can be set on the SYSTEM CONFIGURATION screen. Refer to Section 2 of the BSM-3000 or BSM-6000 series bedside monitor Administrator's Guide.

1. Display the PATIENT INFO window of the esCCO window.
   Press the [Menu] key → esCCO key → PATIENT INFO tab.

2. Check the patient information. If necessary, change the setting. BSA is automatically calculated when the height and weight are entered.

NOTE

If another window is opened before pressing the Enter key, the entered value is deleted.



3. Press the [Home] key to return to the home screen.

Calibration

To perform calibration, the following parameters must be monitored.

ECG and SpO_2

HR and PWTT must be monitored for more than 4 minutes to do calibration.

CAUTION

Do not monitor SpO_2 by attaching the probe on the foot.

NOTE

Turn the AUTO LEAD CHANGE setting to OFF. The change in ECG lead alters the value of esCCO.

NIBP or IBP

When using NIBP, measure NIBP more than once by manual or periodic measurement. In periodic measurement, set the measurement interval to 2 minutes or longer. If calibration is not performed within 10 minutes from the last NIBP measurement, the PP value for calibration becomes invalid.

When using IBP, IBP monitoring must be stable for more than 3 minutes. Zero balance must be adjusted. If zero balance is not adjusted or calibration is not performed within 10 minutes from starting stable IBP monitoring, the PP value becomes invalid.

CO, CCO or patient information

Depending on the <CAL CO> setting on the CAL window, do the following.

When “CO FROM PATIENT INFO” is selected:
Enter height, weight, age and gender on the PATIENT INFO window.

When “CO FROM HEMO TREND” is selected:
Measure CO and register the result in the HEMO TREND window. More than one measurement within 10 minutes is required.

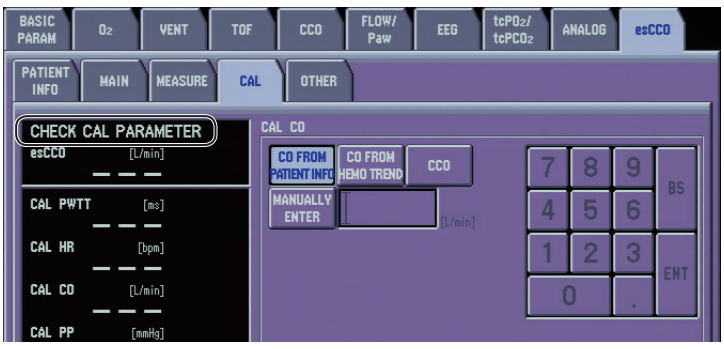
When “CCO” is selected:
Monitor CCO or PiCCO by the CCO or PiCCO monitor connected to the bedside monitor.

When “MANUALLY ENTER” is selected:
Enter CO value manually. If calibration is not performed within 10 minutes from entering the CO value, the CO value for calibration becomes invalid.

Calibration Procedure

1. Display the CAL window of the esCCO window.
   Press the [Menu] key → esCCO key → CAL tab.

   The “CHECK CAL PARAMETER” message appears on the home screen and esCCO window.



2. Select the CO parameter for calibration.
   CO FROM PATIENT INFO:
   Value calculated by the monitor using patient information is used for calibration. Enter height, weight, age and gender on the PATIENT INFO window. If the gender of the patient is unknown "(blank)", the value is calculated as "MALE".
   CO FROM HEMO TREND:
   Measured value registered on the HEMO TREND window by measuring CO is used for calibration.
   CCO: Measured value monitored by an external device using the QF interface/IF communication cable is used for calibration.
   MANUALLY ENTER:
   Enter the value using the numeric keys on the window.

CAUTION

When using "CO FROM PATIENT INFO" for calibrating esCCO, the automatically calculated CO value is an approximate and must be checked by a physician. If the CO value is not appropriate, enter CO value manually. Check that the CO is also appropriate after calibration.

3. Select the PP parameter for calibration.
   When using IBP, select the appropriate label.

NOTE

- Perform calibration within 10 minutes from the last NIBP measurement or starting stable IBP monitoring. Otherwise the PP value for calibration becomes invalid.
- If the IBP label for the PP parameter is changed, wait at least 10 minutes before performing calibration for esCCO.

4. When all values for calibration are obtained, the CAL key on the CAL window becomes available and the "READY FOR CAL" message appears on the home screen and esCCO window. Touch the CAL key.

NOTE

- Calibration is not performed when any of the values necessary for calibration are invalid.
- If PP value is invalid, measure again.

After calibration, the "CAL COMPLETE" message, esCCO value, calibration date and time and CO and PP source are displayed.

NOTE

The heart rate on the home screen and CAL window of the esCCO window differ due to the difference in averaging. Do not use the heart rate on the esCCO window for monitoring the patient.

If calibration fails, the "CAL ERROR" message appears. Remove the cause and calibrate again. The following points may be the cause for calibration failure and invalid esCCO range after calibration.

- CO value is smaller than 0.5 L/min or larger than 20.0 L/min
- PWTT changed greatly
- HR changed greatly
- Pacing pulse is detected

CAUTION

When NIBP is measured at a short interval, PWTT changes greatly which might not be correctly applied to the esCCO calibration.

When mounting an AY-600P series input unit or BSM-1700 series bedside monitor on the BSM-6000 series bedside monitor

- To transport the calibration data with the AY-661P/663P/671P/673P input unit or BSM-1763/1773 bedside monitor, the following conditions must be met.
  - The software version of the BSM-6000 bedside monitor is 05-01 or later.
  - For the BSM-1763/1773 bedside monitor, <DATA TRANSPORT USING INPUT UNIT> on the DATA MANAGEMENT window of the SYSTEM CONFIGURATION screen is set to ENABLE on both the BSM-1763/1773 and BSM-6000 series bedside monitors.
  - For the AY-661P/663P/671P/673P input unit, a QM-600P memory unit is installed in the input unit.
- When the AY-661P/663P/671P/673P input unit or BSM-1763/1773 bedside monitor which has the calibration data for esCCO is connected, the "esCCO ERROR" message may appear on the screen. If this appears, wait for a minute until it disappears.

Monitoring esCCO

When calibration is performed properly, esCCO data appears on the home screen.

CAUTION

In the following cases, SQI may become low and correct esCCO might not be obtained.

- During CPB (cardiopulmonary bypass)
- During displacement of the heart
- Hemodynamically unstable patients
- Change in IBP measurement sites after CPB
- Pacemaker patient
- Unstable pulse wave due to poor peripheral circulation
- Too many arrhythmias
- Patient movement
- Noise on ECG due to ESU
- IABP
- Low perfusion
- During construction of wall grafts in OPCAB
- NIBP measurement
- Transducer position change

CAUTION

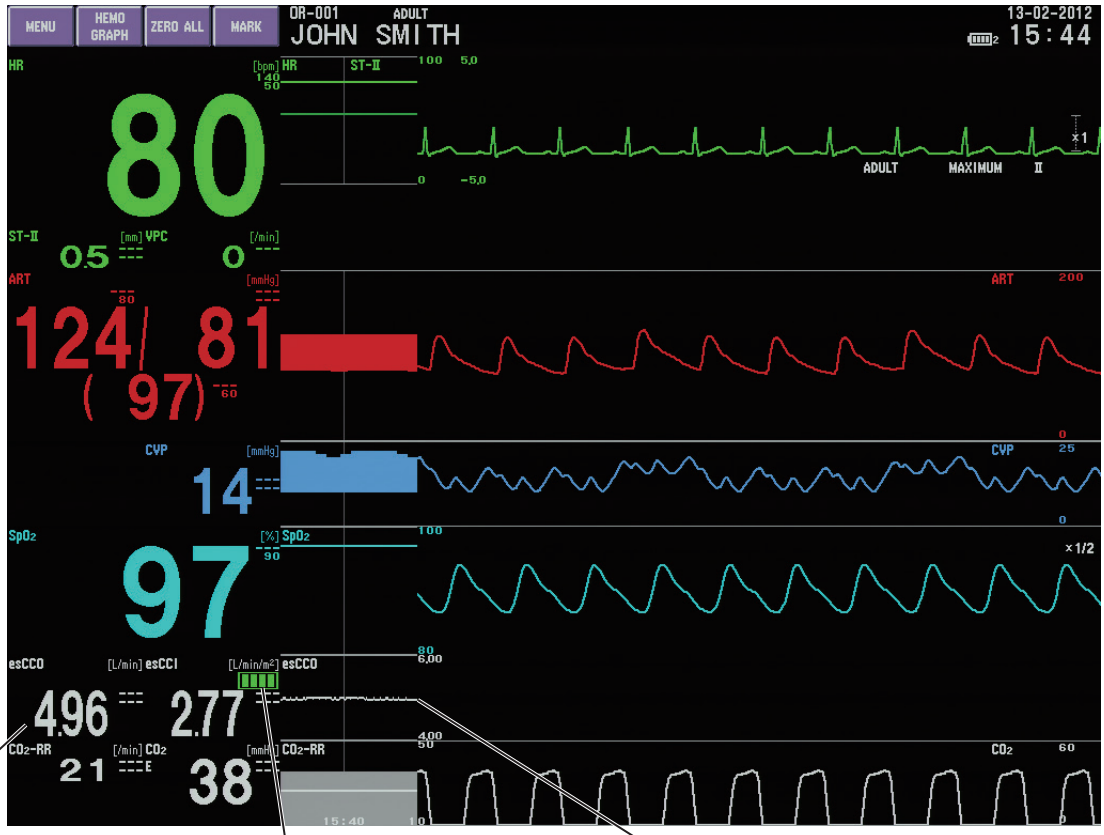
In the following cases, calibrate again because correct esCCO cannot be obtained.

- ECG monitoring lead is changed.
- Electrode attachment place is changed.
- SpO2 probe attachment place is changed.
- The AY series input unit or BSM-1700 series bedside monitor which does not have the calibration data for esCCO is connected.
- Monitor power is turned off and on.
- Patient is admitted or discharged.
- Data is deleted.
- After patient movement or body position change, the esCCO value has changed greatly.

NOTE

- esCCO data is not displayed when calibration is not performed or not performed appropriately.
- When measured data is abnormal, SQI may become “Poor” and the esCCO data is not reliable.
- To determine the SQI level, the PP parameter (NIBP or IBP) used for calibration must be available for measurement while monitoring esCCO.
- When a pacing pulse is detected during esCCO monitoring, SQI level degrades.

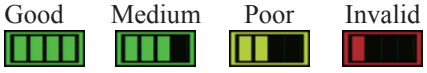
esCCO Information on the Home Screen



esCCO monitoring values
(Up to four parameters selected on the OTHER window of the esCCO window)

SQI bar graph
esCCO SQI is indicated in four levels.

Good Medium Poor Invalid



esCCO or esCCI trendgraph

Up to four esCCO numeric parameters can be displayed on the home screen.

esCCO Information on the esCCO Window

Patient information

SQI bar graph

NOTE

To calculate esCCI, esSVI and esSVRI, patient information (BSA) must be entered. Refer to the “Checking the Patient Information” section.

Changing esCCO Settings

Change the settings on the esCCO window. The following settings can be changed.

- esCCO and esCCI alarm limits
- esCCO or esCCI trendgraph display on the home screen
- Select esCCO parameters to be displayed on the home screen

The display color for esCCO can be set on the SYSTEM SETUP window. Refer to Section 3 of the BSM-3000 or BSM-6000 series bedside monitor Administrator’s Guide.

Changing the esCCO and esCCI Alarm Setting

CAUTION

When the alarm limit is set to Off, there will be no alarm for that limit. Be careful when you set the alarm limit to Off.

You can set the upper and lower esCCO and esCCI alarm limits on the esCCO window. You can set all alarms, including the upper and lower esCCO/esCCI alarm limits, on the ALARM LIMITS window (See BSM-3000 or BSM-6000 series bedside monitor User’s Guide Part I, Section 5).

Setting Rage

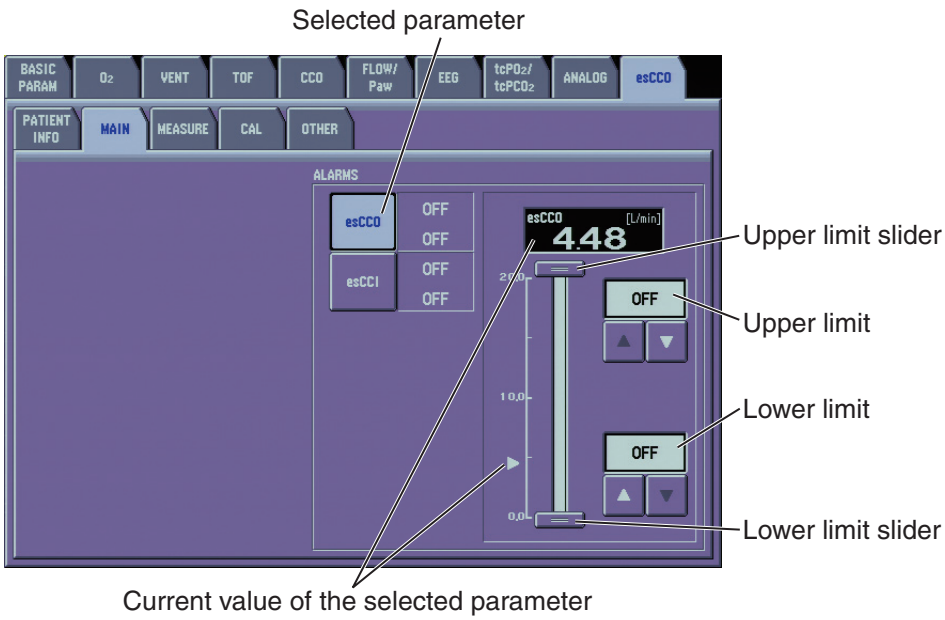
esCCO upper limit: 0.60 to 20.00 L/min in 0.10 L/min steps, Off
esCCO lower limit: Off, 0.50 to 19.90 L/min in 0.10 L/min steps
esCCI upper limit: 0.60 to 20.00 L/min/m^2 in 0.10 L/min/m^2 steps, Off
esCCI lower limit: Off, 0.50 to 19.90 L/min/m^2 in 0.10 L/min/m^2 steps

1. Display the MAIN window of the esCCO window.
   Press the [Menu] key → esCCO key → MAIN tab.

2. Touch the esCCO key to change the esCCO alarm setting.
   Touch the esCCI key to change the esCCI alarm setting.

3. Touch and drag the sliders to the desired level on the setting bar. Use the ▲ or ▼ key to adjust the setting.

   If the upper limit is set to a value above the maximum, the upper limit alarm is set to OFF. If the lower limit is set to a value below the minimum, the lower limit alarm is set to OFF.



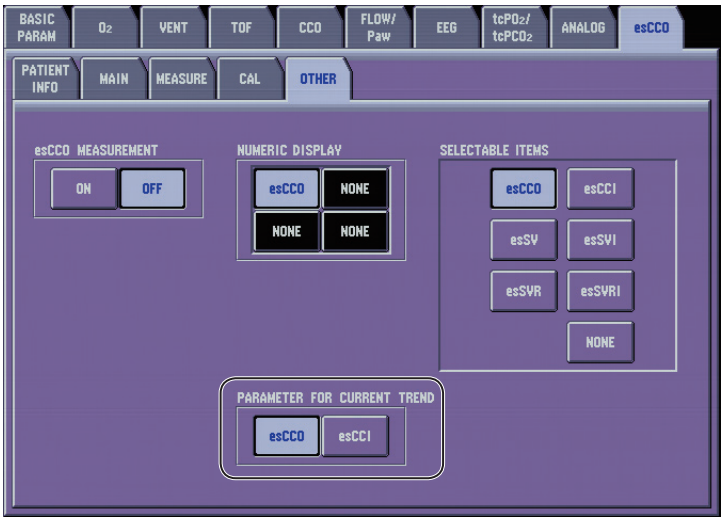
4. Press the [Home] key to return to the home screen.

Selecting esCCO or esCCI for Trendgraph Display

Either esCCO or esCCI can be selected for the trendgraph on the home screen.

1. Display the OTHER window of the esCCO window.
   Press the [Menu] key → esCCO key → OTHER tab.

2. Select either esCCO or esCCI in the <PARAMETER FOR CURRENT TREND> box.



3. Press the [Home] key to return to the home screen.

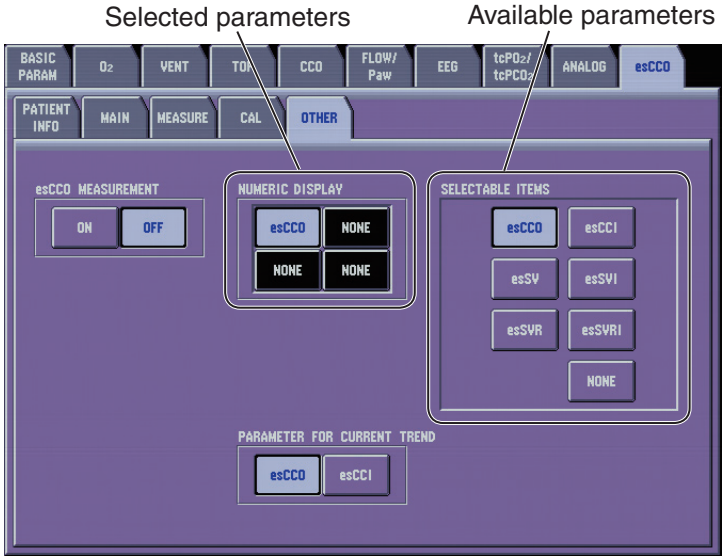
Selecting Parameters to be Displayed on the Home Screen

Up to 4 esCCO parameters can be selected to be displayed on the home screen.

1. Display the OTHER window of the esCCO window.
   Press the [Menu] key → esCCO key → OTHER tab.

2. Select the parameter you want to change.

3. Select the parameter by touching the desired parameter key.



4. Press the [Home] key to return to the home screen.

Hemodynamics Graph Window (QP-033P Only)

General

The HEMO GRAPH window displays the hemodynamics data of a patient as a trendgraph and target graph. A target graph has an X axis (horizontal axis) which shows a parameter concerning preload and a Y axis (vertical axis) which shows a parameter concerning heart's pumping function, such as cardiac output. From the target graph, you can visually grasp the patient's circulation condition.

The scales can be changed and you can use the target zone to manage the patient's circulation.

The monitor has master graph settings on which parameters and scales of the graphs are set. These settings can be changed any time on the graph windows but these change back to the master settings when:

- The monitor power is off for more than 30 minutes when <SHOW ADMIT CONFIRMATION WINDOW> is set to "Off" in the SYSTEM CONFIGURATION screen.
- The patient is admitted or discharged.
- The "PATIENT TYPE" setting is changed on the ADMIT DISCHARGE window.

The master graph settings are set on the HEMO GRAPH window of the SYSTEM SETUP window.

NOTE for BSM-6000 series bedside monitor

* The "input unit" means the AY-600P series input unit with a QM-600P memory unit, or the BSM-1700 series bedside monitor.

- When <DATA TRANSPORT USING INPUT UNIT> is set to "DISABLE", and <SHOW ADMIT CONFIRMATION WINDOW> is set to "Off" in the SYSTEM CONFIGURATION screen, the stored data remains in memory for about 30 minutes after the power is turned off. After 30 minutes, the stored data is lost. When <DATA TRANSPORT USING INPUT UNIT> is set to "ENABLE", the patient data and settings remain in the input unit*.
- When using an input unit* and data transport function is enabled,
  - data for up to 24 hours is saved in the input unit*.
  - the saved data remains in the main unit and input unit* even when 30 minutes elapse after monitor power off.
- The time of the data in the input unit* is adjusted to the time of the main unit.

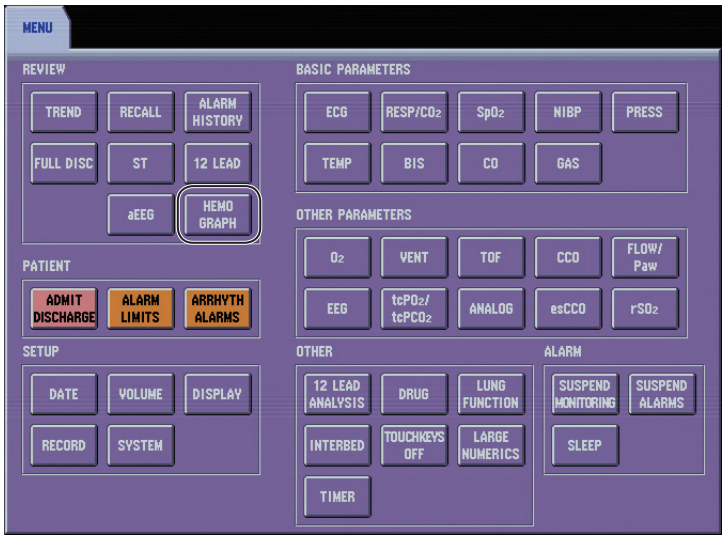
NOTE

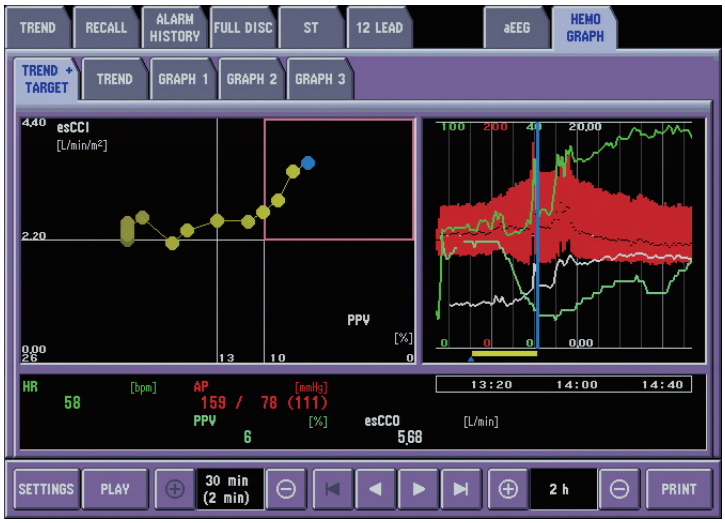
The oldest data is deleted when the maximum number of data are created.

Displaying the HEMO GRAPH Window

1. Display the MENU window.
   - Press the [Menu] key on the monitor.
   - Press the [MENU/HOME] key on the remote control.
   - Touch the MENU function key on the screen.

2. Touch the “HEMO GRAPH” key. The HEMO GRAPH window appears.





You can also display the HEMO GRAPH window by:

- Touching the “HEMO GRAPH” tab on another Review window.
- Touching the “HEMO GRAPH” function key on the screen or remote control.

NOTE

When changing the review window, the data at the cursor on the original window is displayed on the second window. For example, when the HEMO GRAPH window is called up from the HEMO TREND window, the trend and target graphs are displayed with the time of the file selected on the HEMO TREND window.

3. Close the window.
   - Press the [Home] key on the monitor or data acquisition unit.
   - Press the [MENU/HOME] key on the remote control.
   - Touch the HOME function key on the screen.
   - Touch the waveform or current trendgraph display area on the home screen.

Window Explanations

There are three types of graph windows for displaying hemodynamics data:
- The TREND window displays the trendgraphs of the six selected parameters.
- The GRAPH window has three target graphs of the selected parameters.
- The TREND + TARGET window shows the trendgraph and one of the target graphs on one window.

Each window displays hemodynamics graphs for the past 24 hours. With the optional QM-601P memory card, data of past 72 hours can be saved.

The displayed hemodynamics graph can be printed on the network printer when the monitor is connected to a network.

CAUTION

When displaying the target area on the target graphs, set the appropriate scale of the target area based on the patient condition. Do not diagnose the patient based only on data of the hemodynamics graph.

NOTE

- The entire graph might not be displayed on the screen depending on the scale.
- The display color of the trendgraphs is the same color as the parameter color selected on the SYSTEM SETUP window. To change the parameter color, refer to Section 3 of the BSM-3000 or BSM-6000 series bedside monitor Administrator Guide.

TREND + TARGET Window

The TREND + TARGET window displays the trendgraph on the right side of the window and one target graph on the left side of the window. The data at the cursor position on the trendgraph is displayed on the target graphs.

The yellow bar just below the trendgraph is the display interval for the target graphs which is set at target graph time. The target graphs are plotted at the interval indicated in the parenthesis at target graph time.

A mark (blue triangle) is set on the trendgraph when the “MARK” function key on the screen/remote control is pressed. An event mark is placed at the “MARK” function key pressed position. The marked position appears as a blue triangle below the trendgraph.

When the cursor on the trendgraph is at the position where the left edge of the yellow bar is at the mark, you can see the circulation condition at the marked position. For example, touch the “MARK” function key on the screen or remote control when a patient is medically treated and later display the TREND + TARGET window of the HEMODYNAMICS GRAPH window to see the changes in the circulation condition after the treatment.

On the trendgraph, when AP (arterial pressure) is selected for the displaying parameter, the highest priority arterial blood pressure is used.
ART > ART2 > RAD > DORS > AO > FEM

Settings of trend time:

30 min/1 h/2 h/4 h/6 h/8 h/12 h/24 h

Settings with the optional QM-601P memory card:

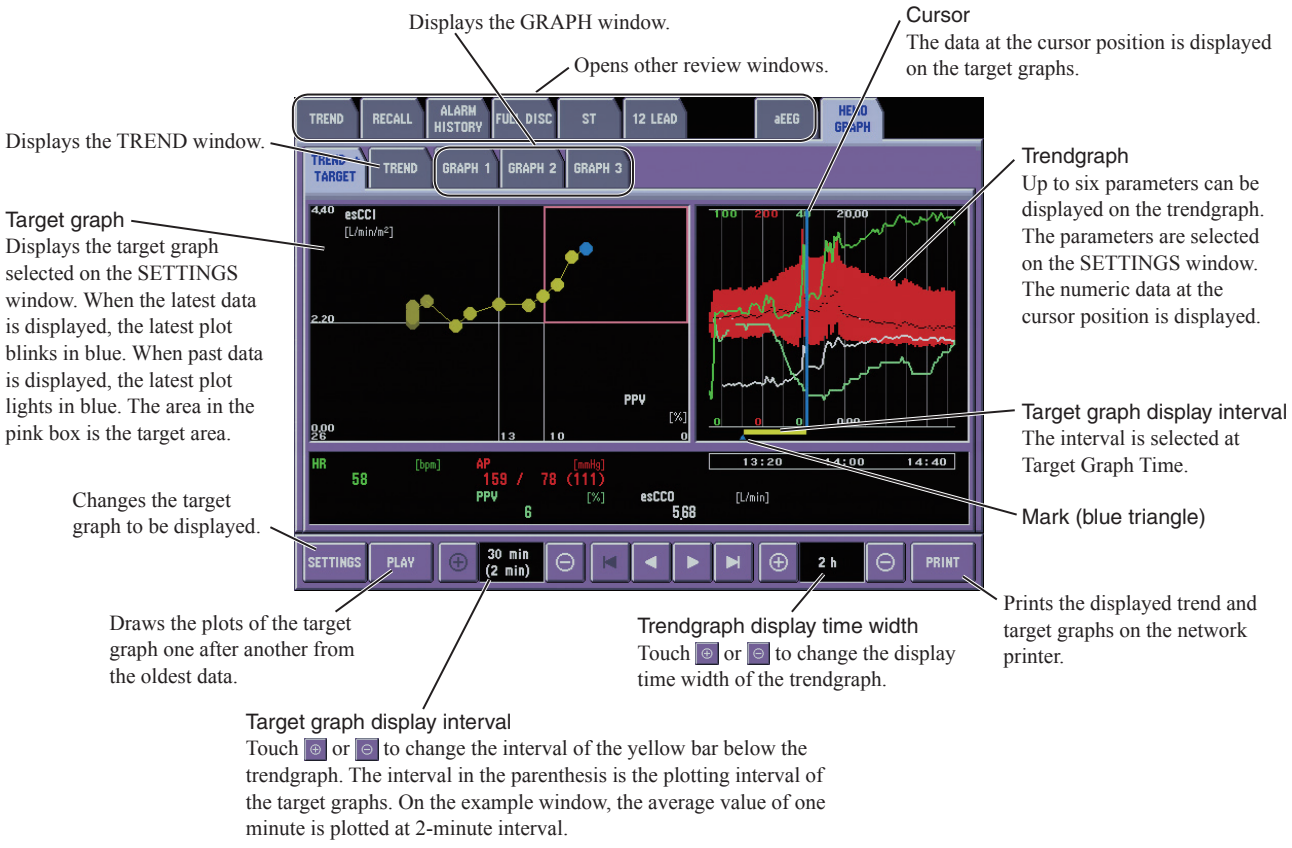
30 min/1 h/2 h/4 h/6 h/8 h/12 h/24 h/48 h/72 h

Settings of target graph time:

30 min (2 min)/1 h (5 min)/2 h (10 min)/4 h (20 min)/6 h (30 min)/8 h (40 min)/12 h (1 hr)/24 h (2 hr)

Settings with the optional QM-601P memory card:

30 min (2 min)/1 h (5 min)/2 h (10 min)/4 h (20 min)/6 h (30 min)/8 h (40 min)/12 h (1 h)/24 h (2 h)/48 h (4 h)/72 h (6 h)



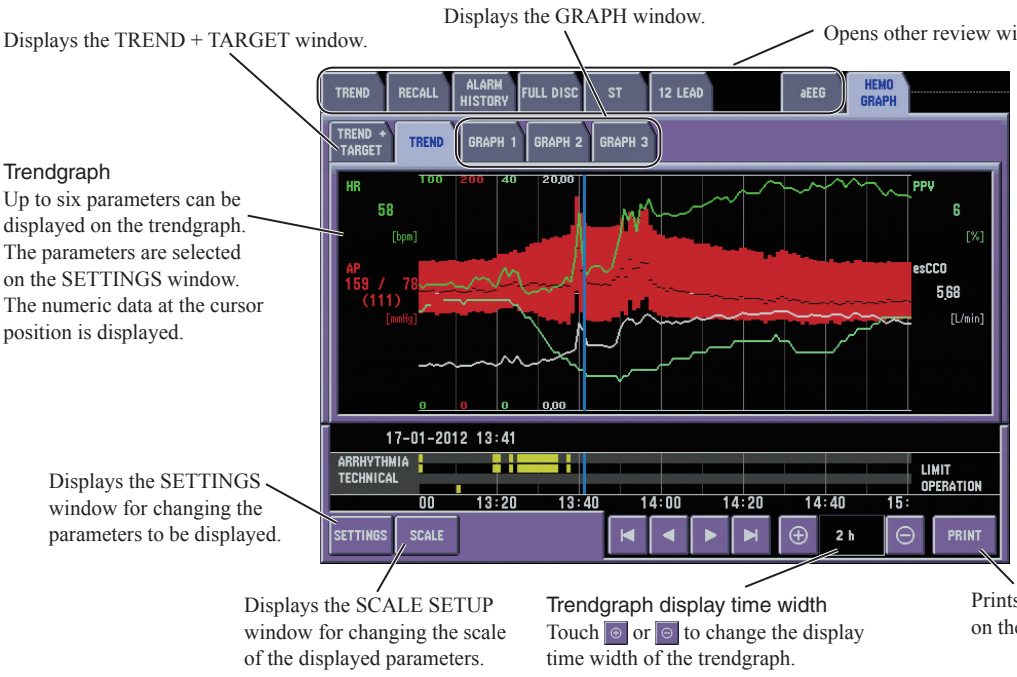
NOTE

The display color of the trendgraphs is the same color as the parameter color selected on the SYSTEM SETUP window. To change the parameter color, refer to Section 3 of the BSM-3000 or BSM-6000 series bedside monitor Administrator Guide.

TREND Window

The TREND window displays the trendgraphs of the up to six parameters selected on the SETTINGS window. When AP (arterial pressure) is selected for the displaying parameter, the highest priority arterial blood pressure is used.
ART > ART2 > RAD > DORS > AO > FEM

Settings of trend time:
30 min/1 h/2 h/4 h/6 h/8 h/12 h/24 h
Settings with the optional QM-601P memory card:
30 min/1 h/2 h/4 h/6 h/8 h/12 h/24 h/48 h/72 h



NOTE

The display color of the trendgraphs is the same color as the parameter color selected on the SYSTEM SETUP window. To change the parameter color, refer to Section 3 of the BSM-3000 or BSM-6000 series bedside monitor Administrator Guide.

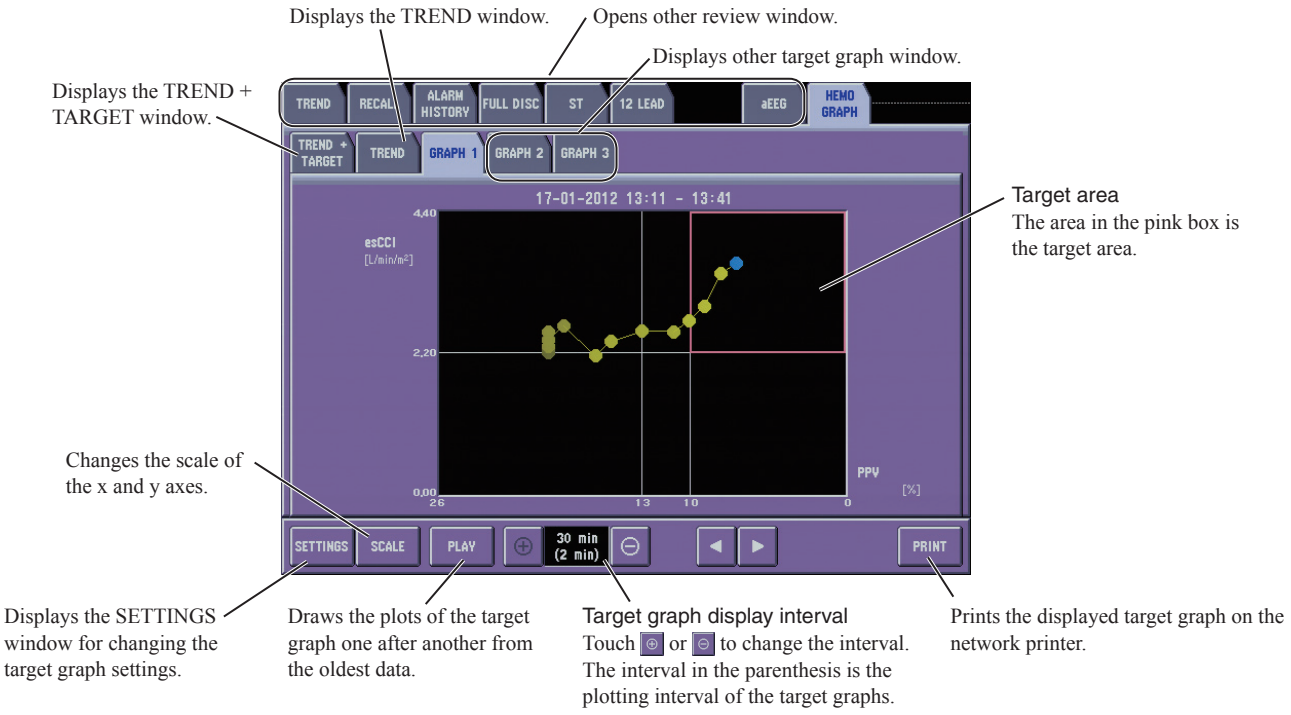
GRAPH Window (Target Graph Window)

The X axis (horizontal axis) shows a parameter for preload and the Y axis (vertical axis) shows a parameter for the heart's pumping function, such as cardiac output. The target graph is plotted at the interval indicated in the parenthesis of the target graph display interval. When the latest data is displayed, the latest plot blinks in green. When past data is displayed, the latest plot is purple. On the example window, the average value of 30 minute is plotted at 2 minute intervals.

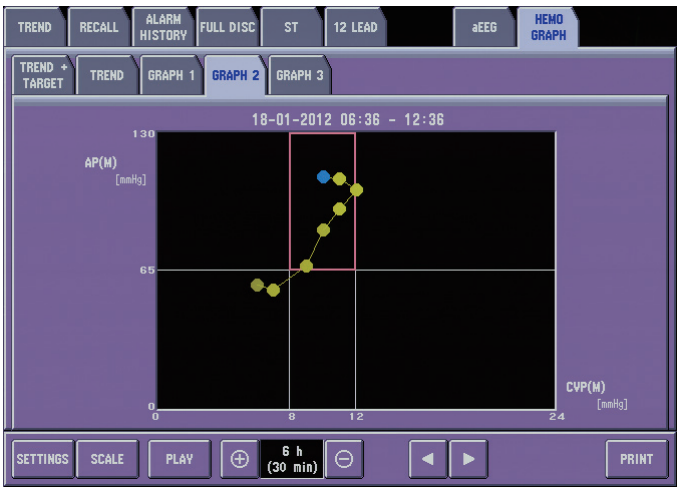
There are three target graphs. The parameters for GRAPH 1 and 2 can be changed on the SETTINGS window. GRAPH 3 is fixed and cannot be changed.

The scales can be changed and you can use the target zone to manage the patient's circulation.

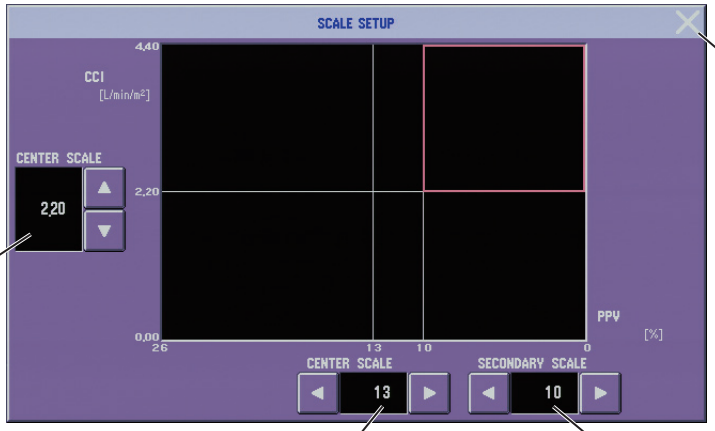
GRAPH 1 and GRAPH 2



The default settings for GRAPH 2 are based on the "Early Goal-Directed Therapy".



To change the scale, touch the SCALE key. The SCALE SETUP window is displayed. Use the ◀ and ▶ keys to change the scale.



Returns to the target graph display

Center scale of the y axis

Center scale of the x axis

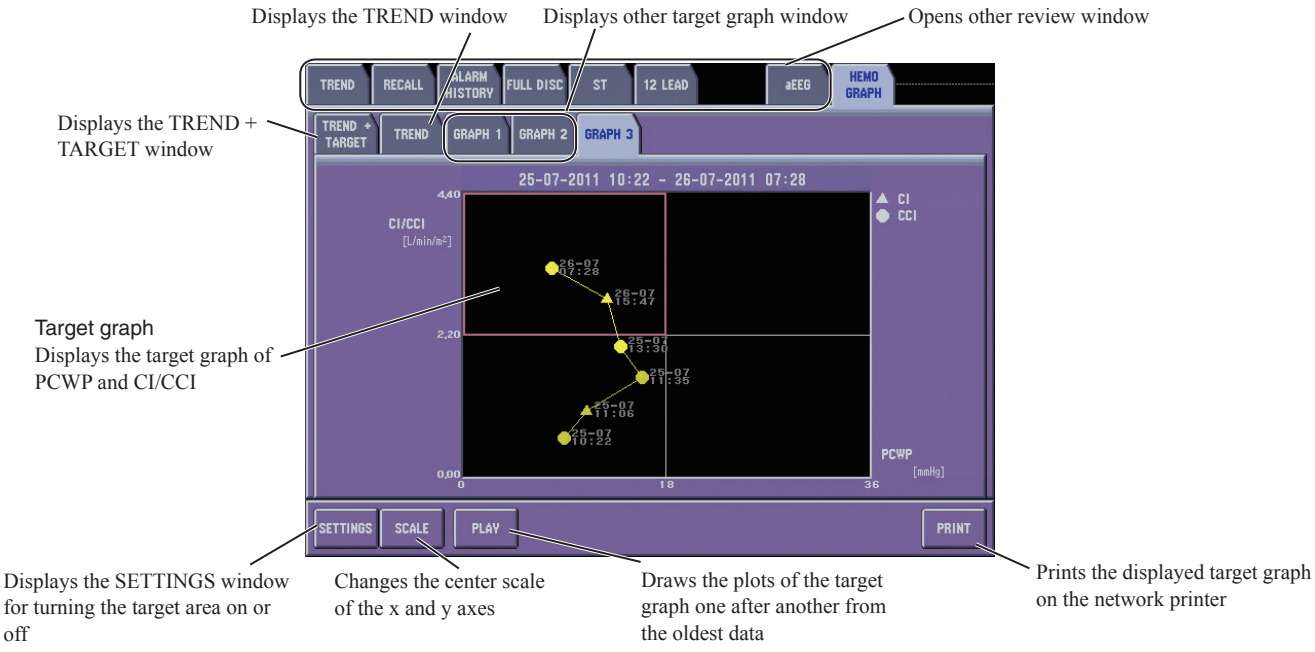
Secondary scale of the x axis

GRAPH 3 (Forrester Classification)

The GRAPH 3 draws the target graph with PCWP on the x axis and CI/CCI on the y axis. The data is updated when PCWP is registered to the HEMO TREND window. The data of up to latest 12 PCWP measurements are plotted. The date and time of the plot are displayed.

The HEMO TREND window can be displayed by pressing the [Menu] key → TREND key → HEMO TREND tab. For details, refer to the bedside monitor Operator's Manual.

The scale can be changed by touching the SCALE key in the same way as the GRAPH 1 and 2. There is no secondary scale for the x axis.



Displays the TREND window

Displays other target graph window

Opens other review window

Displays the TREND + TARGET window

Target graph
Displays the target graph of PCWP and CI/CCI

Displays the SETTINGS window for turning the target area on or off

Changes the center scale of the x and y axes

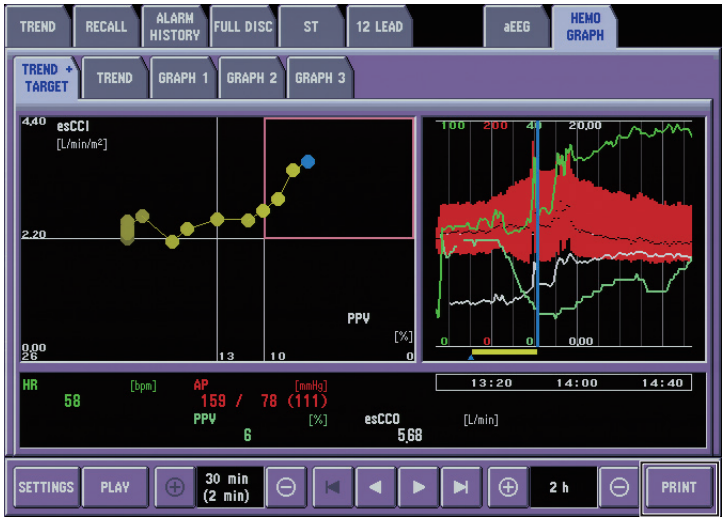
Draws the plots of the target graph one after another from the oldest data

Prints the displayed target graph on the network printer

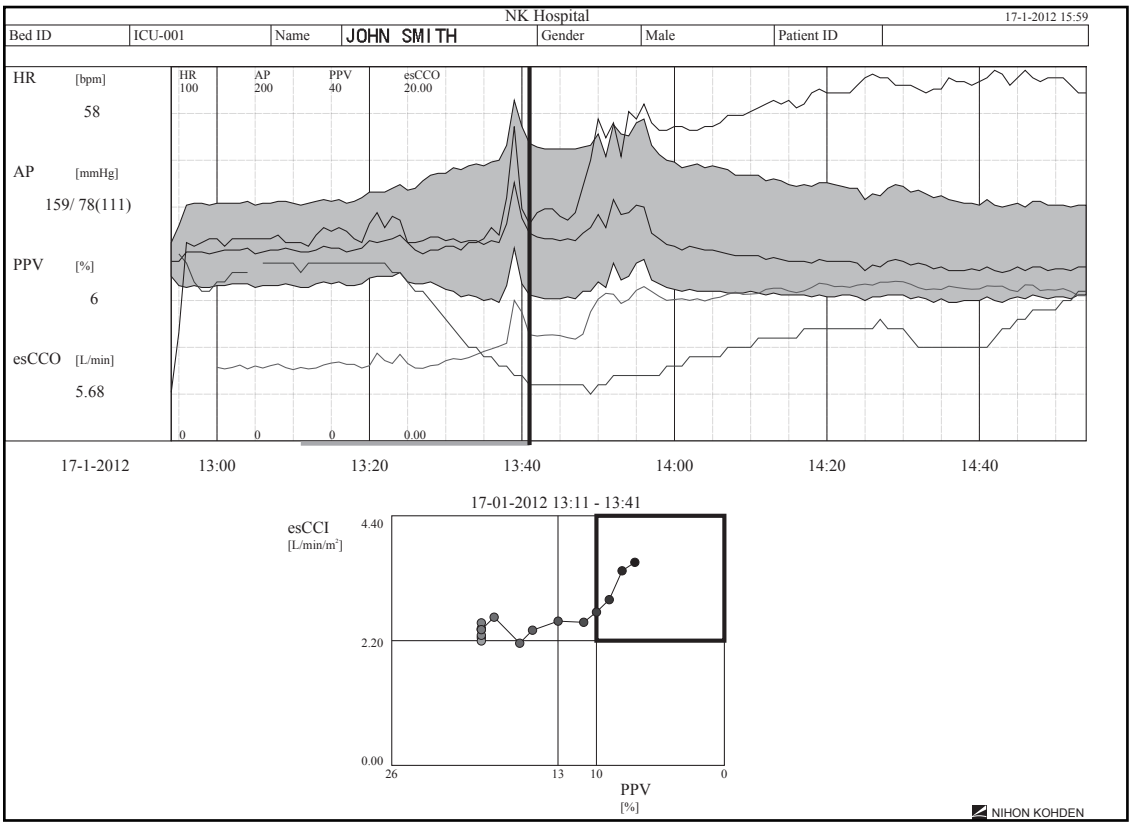
Printing Hemodynamics Graph

The displayed hemodynamics graph can be printed on the network printer when the monitor is connected to a network.

Touch the PRINT key on the window to print.



Print example



Selecting Parameters for Trendgraph Display

Up to six parameters can be displayed as trendgraphs on the TREND + TARGET and TREND windows.

1. Display the TREND window of the HEMO GRAPH window.
   Press the [Menu] key → HEMO GRAPH key → TREND tab.

2. Touch the SETTINGS key.

3. Select the position in the display order of the parameters for drawing the trendgraph. The trendgraphs overlaps each other. The trendgraph of the top parameter comes in front and the trendgraph of the other parameters are drawn in the list order. However, PAP is always drawn at the back, AP comes in front of PAP and NIBP is always drawn in front.

4. Select the parameter you want to display on the trendgraph. Use the None key to deselect the parameter.

5. Repeat steps 3 and 4 to select other parameters.

6. Display the TREND + TARGET or TREND window and check the trendgraph display.

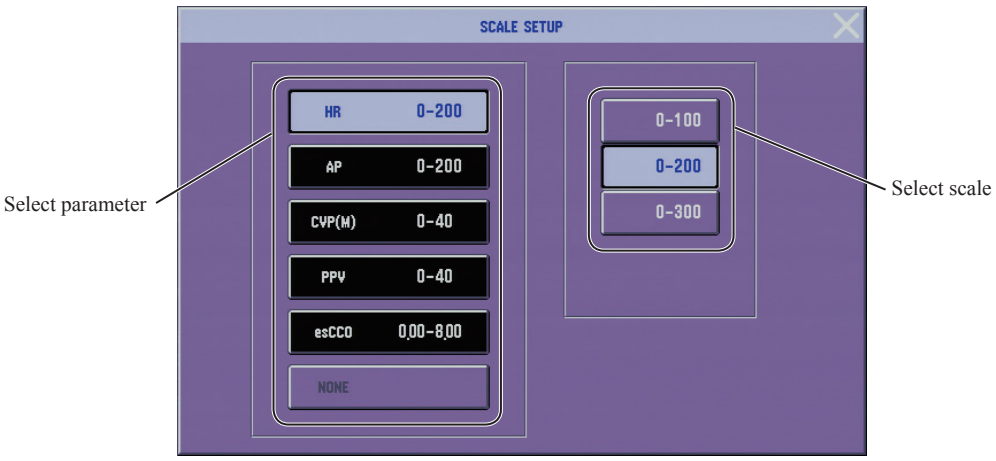
Changing the Trendgraph Scale

You can change the trendgraph scale for each parameter.

1. Display the TREND window of the HEMO GRAPH window.
   Press the [Menu] key → HEMO GRAPH key → TREND tab.

2. Touch the SCALE key.

3. Select the parameter to change the scale.



4. Select the scale for the trendgraph.

NOTE

The entire trendgraph might not be displayed on the screen depending on the scale. Select the appropriate scale.

5. Display the TREND + TARGET or TREND window and check the trendgraph display.

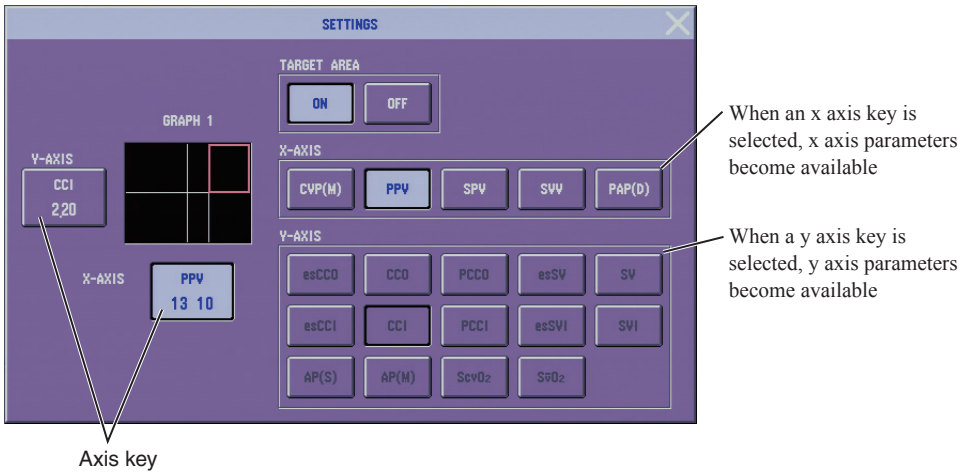
Selecting Parameters for Target Graph Display

Select the parameters for the x axis and y axis of GRAPH 1 and 2. The parameters for GRAPH 3 cannot be changed.

1. Display the GRAPH window of the HEMO GRAPH window.
   Press the [Menu] key → HEMO GRAPH key → GRAPH 1 or 2 tab.

2. Touch the SETTINGS key.

3. Touch the axis key on the target graph you want to change. When the x axis is selected, the parameters in the <X-axis> box become available. When the y axis is selected, the parameters in the <Y-axis> box become available.



4. Select the parameter from the <X-axis> or <Y-axis> box.

5. Repeat steps 3 and 4 to change the parameters of other axes for the other target graphs.

6. Select On or Off to display or not display the target area on the target graphs. The pink box on the target graph is the target area.

CAUTION

When displaying the target area on the target graphs, set the appropriate scale of the target area based on the patient condition.

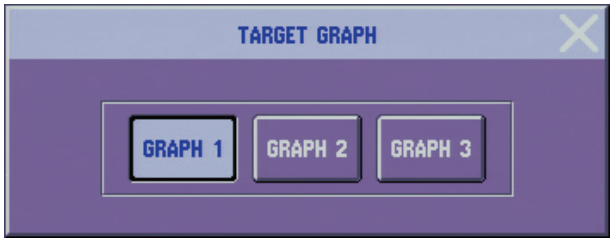
7. Display the TREND + TARGET or GRAPH window and check the target graph display.

Selecting the Target Graph to be Displayed on the TREND + TARGET Window

You can select the target graph to be displayed on the TREND + TARGET window.

1. Display the TREND + TARGET window of the HEMO GRAPH window. Press the [Menu] key → HEMO GRAPH key → TREND + TARGET tab.

2. Touch the SETTINGS key. The TARGET GRAPH window is displayed.



3. Select one target graph to be displayed on the TREND + TARGET window.

4. Touch to close the window.

5. Check the target graph display on the TREND + TARGET window.

Changing the Master Graph Settings

The monitor has master graph settings on which parameters and scales of the graphs are set. These settings can be changed any time on the graph windows but these change back to the master settings when:

- The monitor power is off for more than 30 minutes when <SHOW ADMIT CONFIRMATION WINDOW> is set to “Off” in the SYSTEM CONFIGURATION screen.
- The patient is admitted or discharged.
- The “PATIENT TYPE” setting is changed on the ADMIT DISCHARGE window.

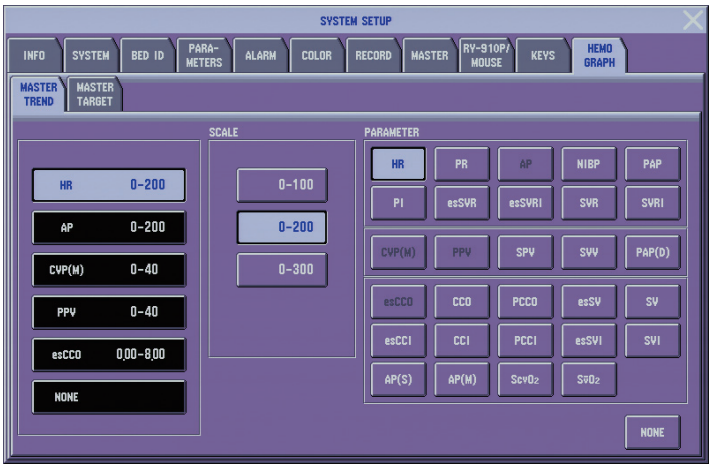
1. Press the [Menu] key on the front panel to display the MENU window.

2. Touch the SYSTEM key on the MENU window.

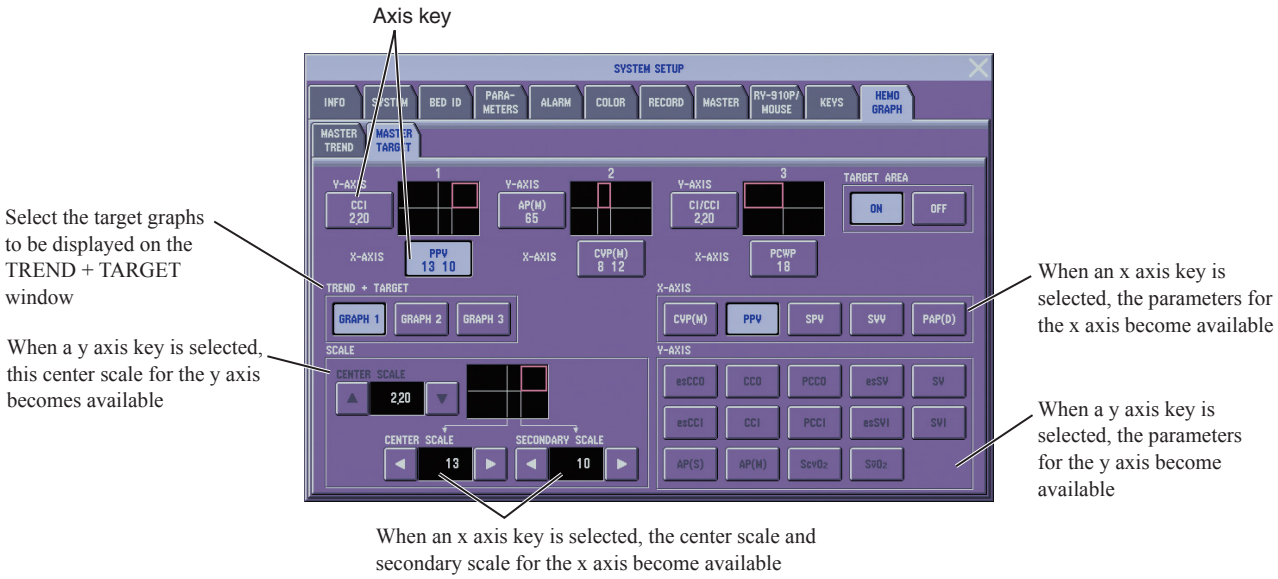
3. Enter the password. For details on the password, refer to the BSM-3000 or BSM-6000 series bedside monitor Administrator's Guide.

4. Touch the HEMO GRAPH tab.

5. On the MASTER TREND window, set the parameters and scales for the trendgraph display. The procedure is the same as changing trendgraph settings on the TREND window. Refer to the "Selecting Parameters for Trendgraph Display" and "Changing the Trendgraph Scale" section.



6. Touch the MASTER TARGET tab and set the settings for the target graph display. The procedure is the same as changing target graph settings. Refer to the "Selecting Parameters for Target Graph Display" and "Selecting the Target Graph to be Displayed on the TREND + TARGET window" section. The scale can also be set on this window.



7. Press the [Home] key to return to the home screen.

Screen Messages and Troubleshooting

Screen Messages

An item with an asterisk (*) in the left column is an alarm.

NOTE

If the problem cannot be solved after performing the countermeasure, contact your Nihon Kohden representative.

Message		Possible Cause/Criteria	Action
—	CAL COMPLETE	Calibration for esCCO monitoring is complete.	—
—	CAL ERROR	Calibration failed. The following points may be the cause of calibration failure. • CO value is smaller than 0.5 L/min or larger than 20.0 L/min • PWTT changed greatly • HR changed greatly	Check the patient and the data on the monitor. Remove the cause and calibrate again.
—	CHECK CAL PARAMETER	The parameter data required for performing calibration are not monitored.	PWTT, HR, CO and PP are necessary for calibration. Check the patient and settings on the esCCO window.
*	esCCI ALARM	esCCI upper or lower limit alarm occurred or the measured value is out of range.	Check the patient condition.
*	esCCO ALARM	esCCO upper or lower limit alarm occurred or the measured value is out of range.	Check the patient condition.
*	esCCO ERROR	Measured value is out of range.	PWTT might not be an appropriate value. Check the patient and ECG and SpO_2 monitoring condition.
		NIBP is measured.	—
		The AY-600P series input unit or BSM-1700 series bedside monitor which has the calibration data for esCCO is connected.	—
—	READY FOR CAL	The parameter data required for performing calibration are ready.	Calibrate.

Troubleshooting

For troubleshooting ECG, SpO_2, NIBP, IBP and CO monitoring, refer to the BSM-3000 or BSM-6000 series bedside monitor Operator's Manual.

Reference

When the QP-033P or QP-034P is installed, the following indications, range, settings and specifications are added. For other indications, range, settings and specifications, refer to the BSM-3000 or BSM-6000 series bedside monitor manuals.

Alarm Indications

Alarm	Alarm Level	Alarm Sound	Alarm Display	Sound/Display Duration	Alarm Indicator LED
esCCO	CRISIS	NK1 (Continuous pip sound), NK2 (Continuous ping sound) or IEC standard (ceg-gC)	Highlighted numeric data and “esCCO ALARM” message	During detection	Blinking red
	WARNING	NK1 (Continuous bing bong sound), NK2 (Continuous ding ding sound) or IEC standard (ceg)	Highlighted numeric data and “esCCO ALARM” message		Blinking yellow
	ADVISORY	NK1 and NK2 (Single beep every 20 or 120 seconds) or IEC standard (ec every 20 or 120 seconds)	Highlighted numeric data and “esCCO ALARM” message		Lights in cyan/ yellow
esCCI	CRISIS	NK1 (Continuous pip sound), NK2 (Continuous ping sound) or IEC standard (ceg-gC)	Highlighted numeric data and “esCCI ALARM” message	During detection	Blinking red
	WARNING	NK1 (Continuous bing bong sound), NK2 (Continuous ding ding sound) or IEC standard (ceg)	Highlighted numeric data and “esCCI ALARM” message		Blinking yellow
	ADVISORY	NK1 and NK2 (Single beep every 20 or 120 seconds) or IEC standard (ec every 20 or 120 seconds)	Highlighted numeric data and “esCCI ALARM” message		Lights in cyan/ yellow

Automatically Setting All Upper and Lower Alarm Limits

Automatic Setting Range

Alarm Item	Automatically Set Upper Limit Value	Automatically Set Lower Limit Value	Unit
esCCO	esCCO × 1.15	esCCO × 0.85	L/min
esCCI	esCCI × 1.15	esCCI × 0.85	L/min/m^2

List of Setting Items and Default Settings (BSM-6000 series)

OK: Remains in memory even when the power is turned off.

Master: When <DATA TRANSPORT USING INPUT UNIT> is set to “DISABLE”, and <SHOW ADMIT CONFIRMATION WINDOW> is set to “Off” in the SYSTEM CONFIGURATION screen, the setting remains in memory for about 30 minutes after turning the power off. After that, the setting changes back to the master setting. When <DATA TRANSPORT USING INPUT UNIT> is set to “ENABLE” or <SHOW ADMIT CONFIRMATION WINDOW> is set to “On” in the SYSTEM CONFIGURATION screen, the setting always remains in memory.

–: Returns to the default setting when the power is turned off.

TREND Window

Window	Page	Item		Setting Item	Default Setting	Backup
TREND	GRAPH 1 GRAPH 2 GRAPH 3**	SCALE	esCCO	0.00-20.00 L/min	4.00-6.00 L/min	OK
			esCCI	0.00-20.00 L/min/m^2	4.00-6.00 L/min/m^2	
			esSV	0-300 mL	0-160 mL	
			esSVI	0-200 mL/m^2	0-80 mL/m^2	
			esSVR	0-3000 dyn•s•m^2/cm^5	0-2000 dyn•s•m^2/cm^5	
				0.0-300.0 kPa•s•m^2/L	0.0-200.0 kPa•s•m^2/L	
			esSVRI	0-6000 dyn•s•m^2/cm^5	0-4000 dyn•s•m^2/cm^5	
				0-600.0 kPa•s•m^2/L	0.0-400.0 kPa•s•m^2/L	
		SETTINGS		HR, PR, VPC, RR, APNEA-T, APNEA-F, NIBP, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), SpO_2-2, PI(SpO_2-2), Tb, ST-I to ST-V6, ART, ART2, RAD, DORS, AO, FEM, UA, UV, PAP, CVP, RAP, RVP, LAP, LVP, ICP, ICP2 to ICP4, P1 to P7, PPV, SPV, Tskin, Tskin2, Tskin3, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1 to T4, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), BIS, SQI(BIS), SR, EMG, PWTT, CCO, CCI, SV, SVI, $S\bar{v}O_2$, $ScvO_2$, EDV, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*, DO_2I*, VO_2*, VO_2I*, esCCO*, esCCI*, esSV*, esSVI*, esSVR*, esSVRI*, TOFrat, TOFcnt, PTC, MV*, TVe*, C*, R*, Re*, Ri*, Ppeak*, Pmean*, PEEP*, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	GRAPH 1 LEFT1: HR LEFT2, 3: NONE RIGHT1: SpO_2 RIGHT2, 3: NONE GRAPH2 LEFT1: NIBP LEFT2, 3: NONE RIGHT1: ART RIGHT2, 3: NONE GRAPH3** LEFT1: T1 LEFT2, 3: NONE RIGHT1: T2 RIGHT2, 3: NONE	

* Not available for BSM-6000A series.

** When the QP-033P is installed, GRAPH 3 is not available.

Window	Page	Item		Setting Item	Default Setting	Backup
TREND	TABLE 1 TABLE 2 TABLE 3	SETTINGS	PARAMETER SETUP	HR, PR, VPC, RR, NIBP-SYS, NIBP-DIA, NIBP-MAP, NIBP-PR, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), SpO_2-2, PI(SpO_2-2), Tb, ST-I to ST-V6, ART-SYS, ART-DIA, ART-MEAN, ART2-SYS, ART2-DIA, ART2-MEAN, RAD-SYS, RAD-DIA, RAD-MEAN, DORS-SYS, DORS-DIA, DORS-MEAN, AO-SYS, AO-DIA, AO-MEAN, FEM-SYS, FEM-DIA, FEM-MEAN, UA-SYS, UA-DIA, UA-MEAN, UV-MAX, UV-MIN, UV-MEAN, PAP-SYS, PAP-DIA, PAP-MEAN, CVP-MAX, CVP-MIN, CVP-MEAN, RAP-MAX, RAP-MIN, RAP-MEAN, RVP-SYS, RVP-DIA, RVP-MEAN, LAP-MAX, LAP-MIN, LAP-MEAN, LVP-SYS, LVP-DIA, LVP-MEAN, ICP-MAX, ICP2-MAX to ICP4-MAX, ICP-MIN, ICP2-MIN to ICP4-MIN, ICP-MEAN, ICP2-MEAN to ICP4-MEAN, P1-SYS to P7-SYS, P1-DIA to P7-DIA, P1-MEAN to P7-MEAN, PPV, SPV, Tskin, Tskin2, Tskin3, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1 to T4, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), O_2 LEV, HAL LEV, ISO LEV, ENF LEV, DES LEV, SEV LEV, BIS, SQI(BIS), SR, EMG, CCO, CCI, SV, SVI, $S\bar{v}O_2$, $ScvO_2$, EDV, EDVI, ESV, ESVI, EF, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*, DO_2I*, VO_2*, VO_2I*, esCCO*, esCCI*, esSV*, esSVI*, esSVR*, esSVRI*, TOFrat, TOFcnt, PTC, MV*, TVe*, C*, R*, Re*, Ri*, Ppeak*, Pmean*, PEEP*, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	TABLE 1 1. HR, 2. PR, 3. RR, 4. SpO_2, 5. ART-SYS, 6. ART-DIA, 7. ART-MEAN, 8. CVP-MEAN, 9. T1, 10. T2, 11. CO_2(E), 12. O_2(I), 13. SEV(E), 14. SEV(I), 15. NONE TABLE2 1. HR, 2. PR, 3. VPC, 4. ST-II, 5. RR, 6. SpO_2, 7. ART-SYS, 8. ART-DIA, 9. ART-MEAN, 10. CVP-MEAN, 11. T1, 12. T2, 13. to 15. NONE TABLE3 1. HR, 2. PR, 3. RR, 4. SpO_2, 5. O_2(I), 6. T1, 7. to 15. NONE	OK
	NIBP TREND	SETTINGS	PARAMETER SETUP	HR, PR, VPC, RR, NIBP-SYS, NIBP-DIA, NIBP-MAP, NIBP-PR, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), SpO_2-2, PI(SpO_2-2), Tb, ST-I to ST-V6, ART-SYS, ART-DIA, ART-MEAN, ART2-SYS, ART2-DIA, ART2-MEAN, RAD-SYS, RAD-DIA, RAD-MEAN, DORS-SYS, DORS-DIA, DORS-MEAN, AO-SYS, AO-DIA, AO-MEAN, FEM-SYS, FEM-DIA, FEM-MEAN, UA-SYS, UA-DIA, UA-MEAN, UV-MAX, UV-MIN, UV-MEAN, PAP-SYS, PAP-DIA, PAP-MEAN, CVP-MAX, CVP-MIN, CVP-MEAN, RAP-MAX, RAP-MIN, RAP-MEAN, RVP-SYS, RVP-DIA, RVP-MEAN, LAP-MAX, LAP-MIN, LAP-MEAN, LVP-SYS, LVP-DIA, LVP-MEAN, ICP-MAX, ICP2-MAX to ICP7-MAX, ICP-MIN, ICP2-MIN to ICP4-MIN, ICP-MEAN, ICP2-MEAN to ICP4-MEAN, P1-SYS to P7-SYS, P1-DIA to P7-DIA, P1-MEAN to P7-MEAN, PPV, SPV, Tskin, Tskin2, Tskin3, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1 to T4, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), O_2 LEV, HAL LEV, ISO LEV, ENF LEV, DES LEV, SEV LEV, BIS, SQI(BIS), SR, EMG, CCO, CCI, SV, SVI, $S\bar{v}O_2$, $ScvO_2$, EDV, EDVI, ESV, ESVI, EF, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*, DO_2I*, VO_2*, VO_2I*, esCCO*, esCCI*, esSV*, esSVI*, esSVR*, esSVRI*, TOFrat, TOFcnt, PTC, MV*, TVe*, C*, R*, Re*, Ri*, Ppeak*, Pmean*, PEEP*, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	1. NIBP-SYS, 2. NIBP-DIA, 3. NIBP-MAP, 4. NIBP-PR, 5. HR, 6. PR, 7. VPC, 8. ST-II, 9. RR, 10. SpO_2, 11. ART-SYS, 12. ART-DIA, 13. ART-MEAN, 14. CVP-MEAN, 15. T1	

* Not available for BSM-6000A series.

ALARM LIMITS Window

Vital Signs Alarms

Window	Page	Setting Item	Settings Range		Step	Default Setting	Backup
ALARM LIMITS	OTHER ALARMS	esCCO*	Upper	OFF, 0.60 to 20.00 L/min	0.1	OFF	Master
			Lower	OFF, 0.50 to 19.90 L/min		OFF	
		esCCI*	Upper	OFF, 0.60 to 20.00 L/min/m^2	0.1	OFF	
			Lower	OFF, 0.50 to 19.90 L/min/m^2		OFF	

* Not available for BSM-6000A series.

esCCO Window

Window	Page	Item		Setting Item	Default Setting	Backup
esCCO	PATIENT INFO	DATE OF BIRTH		254 YEARS 11 MONTHS 30 DAYS before to the present date	—	OK
		HEIGHT	cm	0.1 to 299.9 cm	—	
			inch	0 ft 0.1 in to 9 ft 11.9 in	—	
		WEIGHT	kg	0.1 to 449.9 kg	—	
			pound	0.1 to 654.9 lb	—	
		BSA (Calculated automatically)		(Related to input height and weight data)	—	—
		GENDER		MALE, FEMALE, (blank)	(blank)	OK
	MAIN	ALARMS	esCCO	The setting items and default setting are the same as the ALARM LIMITS setting in OTHER ALARMS page.		Master
			esCCI			
	CAL	CAL CO		CO FROM PATIENT INFO, CO FROM HEMO TREND, CCO, MANUALLY ENTER	CO FROM PATIENT INFO	
		CAL PP		ART, ART 2, RAD, FEM, NIBP	ART	
	OTHER	esCCO MEASUREMENT		ON, OFF	OFF	OK
		NUMERIC DISPLAY		SELECTABLE ITEMS: esCCO, esCCI, esSV, esSVI, esSVR, esSVRI, NONE	esCCO	
		PARAMETER FOR CURRENT TREND		esCCO, esCCI	esCCO	

HEMO GRAPH Window (QP-033P Only)

Window	Page	Item		Setting Item	Default Setting	Backup
HEMO GRAPH	TREND + TARGET	SETTINGS	TARGET GRAPH	GRAPH 1, GRAPH 2, GRAPH 3	GRAPH 1	Master
		Target graph time		30 min (2 min), 1 h (5 min), 2 h (10 min), 4 h (20 min), 6 h (30 min), 8 h (40 min), 12 h (1 h), 24 h (2 h)	1 h (5 min)	OK
		Trend time		30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 12 h, 24 h, 48 h†, 72 h†	4 h	
	TREND	SETTINGS		HR, PR, AP, NIBP, PAP, PI, SVR, SVRI, esSVR, esSVRI, PAP(D), CVP(M), PPV, SPV, SVV, CCO, CCI, PCCO, PCCI, esCCO, esCCI, SV, SVI, esSV, esSVI, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	HR, AP, CVP(M), PPV, esCCO	Master
		SCALE SETUP	HR, PR	0-100, 0-200, 0-300 bpm	0-200 bpm	
			AP, NIBP, AP(S), AP(M)	0-100, 0-200, 0-300 mmHg 0-13.5, 0-26.5, 0-40.0 kPa	0-200 mmHg 0-26.5 kPa	
			PI	0-2, 0-5, 0-20%, 0.01-100 (log)	0.01-100 (log)	
			SVR, esSVR	0-1000, 0-2000, 0-3000 dyn*s/cm^5 0-100, 0-200, 0-300 kPa*s/L	0-2000 dyn*s/cm^5 0-200 kPa*s/L	
			SVRI, esSVRI	0-2000, 0-4000, 0-6000 dyn*s*m^2/cm^5 0-200, 0-400, 0-600 kPa*s*m^2/L	0-4000 dyn*s*m^2/cm^5 0-400 kPa*s*m^2/L	
			PAP, PAP(D), CVP(M)	0-20, 0-40, 0-80 mmHg 0-2.5, 0-5.5, 0-10.5 kPa	0-40 mmHg 0-5.5 kPa	
			PPV, SPV, SVV	0-20, 0-40, 0-100%	0-40%	
			CCO, PCCO, esCCO	0-4, 0-8, 0-20 L/min	0-8 L/min	
			CCI, PCCI, esCCI	0-4, 0-8, 0-20 L/min/m^2	0-8 L/min/m^2	
			SV, esSV	0-80, 0-160, 0-300 mL	0-160 mL	
			SVI, esSVI	0-40, 0-80, 0-200 mL/m^2	0-80 mL/m^2	
			$S\bar{v}O_2$, $ScvO_2$	0-100, 50-100%	0-100%	
		Trend time		30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 12 h, 24 h, 48 h†, 72 h†	4 h	OK
	GRAPH (Target graph)	SETTINGS	X-AXIS	PAP(D), CVP(M), PPV, SPV, SVV	GRAPH 1: PPV GRAPH 2: CVP(M)	Master
			Y-AXIS	CCO, CCI, PCCO, PCCI, esCCO, esCCI, SV, SVI, esSV, esSVI, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	GRAPH 1: CCI GRAPH 2: AP(M)	
			TARGET AREA	ON, OFF	ON	
		SCALE SETUP	CVP(M), PAP(D)	0 to 80 mmHg (0 to 10.0 kPa)	Center Scale: 12 mmHg (1.6 kPa) Secondary Scale: 8 mmHg (1.2 kPa)	
			PPV, SPV, SVV	0 to 100%††	Center Scale: 13% Secondary Scale: 10%	
			esCCO, CCO, PCCO	0 to 20 L/min	3 L/min	
			esCCI, CCI, PCCI	0 to 20 L/min/m^2	2.2 L/min/m^2	
			esSV, SV	0 to 300 mL	30 mL	
			esSVI, SVI	0 to 200 mL/m^2	20 mL/m^2	
			AP(S), AP(M)	0 to 300 mmHg (0 to 40.0 kPa)	65 mmHg (8.8 kPa)	
			$S\bar{v}O_2$, $ScvO_2$	0 to 100%	$S\bar{v}O_2$: 65%, $ScvO_2$: 70%	
		Target graph time		30 min (2 min), 1 h (5 min), 2 h (10 min), 4 h (20 min), 6 h (30 min), 8 h (40 min), 12 h (1 h), 24 h (2 h)	1 h (5 min)	OK

† Only available when the QM-601P memory card is installed.
†† 0% is positioned at right on the target graph.

SYSTEM SETUP Window

Window	Page		Setting Item		Setting Range	Default Setting	Backup
PARAMETERS	esCCO		esCCO MEASUREMENT		On, Off	On	OK
			MASTER CAL CO		CO FROM PATIENT INFO, CO FROM HEMO TREND, CCO, MANUALLY ENTER	CO FROM PATIENT INFO	
			MASTER CAL PP		ART, ART 2, RAD, FEM, NIBP	ART	
ALARM	ALARM PRIORITY	PARAMETER 3	esCCO/esCCI*1		CRISIS, WARNING, ADVISORY	ADVISORY	
COLOR	OTHER PARAM		esCCO		Green, cyan, salmon, sky blue, yellow, light yellow, white, pink, yellow green, purple, red, orange	white	
			SVR/esSVR			yellow green	
KEYS			FUNCTION KEYS		FREEZE, TOUCHKEYS OFF, ZERO ALL, SUSPEND ALARMS, ALL ALARMS OFF*2, SUSPEND MONITORING*3, SLEEP*4, BYPASS*5, NIBP START/STOP, MARK*6, MENU, HOME, LARGE NUMERICS, DISCHARGE (BSM-6000K series only), NEXT CASE (BSM-6000A series only)*7, TRANSPORT DATA (BSM-6000K series only)*8, X-PORT DATA (BSM-6000A series only)*8, VENOUS PUNCTURE, 12 LEAD ANALYSIS, CO, PCWP, GAS, INTERBED, DRUG, LUNG FUNCTION, TIMER, TREND GRAPH, TREND DATA, RECALL, ALARM HISTORY, FULL DISC, ST TREND*9, NIBP TREND, HEMO TREND, LUNG TREND, OCRG*10, 12 LEAD, aEEG*11, HEMO GRAPH*6, PRINT WAVE, PRINT OCRG, RECORD OCRG, RECORD WAVE, NONE	1: MENU 2: TREND GRAPH 3: ZERO ALL 4: ALARM HISTORY	
			REMOTE CONTROL KEYS			NONE	
HEMO GRAPH*5	MASTER TREND		PARAMETER		HR, PR, AP, NIBP, PAP, PI, SVR, SVRI, esSVR, esSVRI, PAP(D), CVP(M), PPV, SPV, SVV, CCO, CCI, PCCO, PCCI, esCCO, esCCI, SV, SVI, esSV, esSVI, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	HR, AP, CVP(M), PPV, esCCO	
			SCALE	HR, PR	0-100, 0-200, 0-300 bpm	0-200 bpm	
				AP, NIBP, AP(S), AP(M)	0-100, 0-200, 0-300 mmHg 0-13.5, 0-26.5, 0-40.0 kPa	0-200 mmHg 0-26.5 kPa	
				PI	0-2, 0-5, 0-20%, 0.01-100 (log)	0.01-100 (log)	
				SVR, esSVR	0-1000, 0-2000, 0-3000 dyn*s/cm^5 0-100, 0-200, 0-300 kPa*s/L	0-2000 dyn*s/cm^5 0-200 kPa*s/L	
				SVRI, esSVRI	0-2000, 0-4000, 0-6000 dyn*s*m^2/cm^5 0-200, 0-400, 0-600 kPa*s*m^2/L	0-4000 dyn*s*m^2/cm^5 0-400 kPa*s*m^2/L	
				PAP(D), PAP, CVP(M)	0-20, 0-40, 0-80 mmHg 0-2.5, 0-5.5, 0-10.5 kPa	0-40 mmHg 0-5.5 kPa	
				PPV, SPV, SVV	0-20, 0-40, 0-100%	0-40%	
				CCO, PCCO, esCCO	0-4, 0-8, 0-20 L/min	0-8 L/min	
				CCI, PCCI, esCCI	0-4, 0-8, 0-20 L/min/m^2	0-8 L/min/m^2	
				SV, esSV	0-80, 0-160, 0-300 mL	0-160 mL	
				SVI, esSVI	0-40, 0-80, 0-200 mL/m^2	0-80 mL/m^2	
				$S\bar{v}O_2$, $ScvO_2$	0-100, 50-100%	0-100%	

*1 Not available for BSM-6000A series.
*2 Available when site is ICU or NICU and alarm off type is set to "ALL ALARMS OFF", or when site is OR and alarm inactivation and alarm off type are set to "ALL ALARMS OFF".
*3 Available only when alarm inactivation is set to "SUSPEND ALARMS".
*4 Available only when site is ICU or NICU and alarm inactivation is set to "SUSPEND ALARMS".
*5 Available only when site is OR and alarm off type is "BYPASS".
*6 Available only when the QP-033P is installed.
*7 Available only when site is OR.
*8 Available only when data transport setting is "ENABLE".
*9 When site is NICU, available only when ST measurement is set to "ON".
*10 Available only when site is NICU.
*11 Not available for BSM-6301A/K.

Window	Page	Setting Item		Setting Range	Default Setting	Backup
HEMO GRAPH*	MASTER TARGET	X-AXIS		PAP(D), CVP(M), PPV, SPV, SVV	Graph 1: PPV Graph 2: CVP(M)	OK
		Y-AXIS		CCO, CCI, PCCO, PCCI, esCCO, esCCI, SV, SVI, esSV, esSVI, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	Graph 1: CCI Graph 2: AP(M)	
		SCALE	CVP(M), PAP(D)	0 to 80 mmHg (0 to 10.0 kPa)	Center Scale: 12 mmHg (1.6 kPa) Secondary Scale: 8 mmHg (1.2 kPa)	
			PPV, SPV, SVV	0 to 100%**	Center Scale: 13% Secondary Scale: 10%	
			esCCO, CCO, PCCO	0 to 20 L/min	3 L/min	
			esCCI, CCI, PCCI	0 to 20 L/min/m^2	2.2 L/min/m^2	
			esSV, SV	0 to 300 mL	30 mL	
			esSVI, SVI	0 to 200 mL/m^2	20 mL/m^2	
			AP(S), AP(M)	0 to 300 mmHg (0 to 40.0 kPa)	65 mmHg (8.8 kPa)	
			$S\bar{v}O_2$, $ScvO_2$	0 to 100%	$S\bar{v}O_2$: 65%, $ScvO_2$: 70%	
		TARGET AREA		ON, OFF	ON	
		TREND + TARGET		GRAPH 1, GRAPH 2, GRAPH 3	GRAPH 1	

* Available only when the QP-033P is installed.

** 0% is positioned at right on the target graph.

List of Setting Items and Default Settings (BSM-3000 series)

OK: Remains in memory even when the power is turned off.

Master: When <DATA TRANSPORT USING INPUT UNIT> is set to “DISABLE”, and <SHOW ADMIT CONFIRMATION WINDOW> is set to “Off” in the SYSTEM CONFIGURATION screen, the setting remains in memory for about 30 minutes after turning the power off. After that, the setting changes back to the master setting. When <DATA TRANSPORT USING INPUT UNIT> is set to “ENABLE” or <SHOW ADMIT CONFIRMATION WINDOW> is set to “On” in the SYSTEM CONFIGURATION screen, the setting always remains in memory.

–: Returns to the default setting when the power is turned off.

TREND Window

Window	Page	Item		Setting Item	Default Setting	Backup
TREND	GRAPH 1 GRAPH 2 GRAPH 3*4	SCALE	esCCO	0.00-20.00 L/min	4.00-6.00 L/min	OK
			esCCI	0.00-20.00 L/min/m^2	4.00-6.00 L/min/m^2	
			esSV	0-300 mL	0-160 mL	
			esSVI	0-200 mL/m^2	0-80 mL/m^2	
			esSVR	0-3000 dyn•s•m^2/cm^5	0-2000 dyn•s•m^2/cm^5	
				0.0-300.0 kPa•s•m^2/L	0.0-200.0 kPa•s•m^2/L	
			esSVRI	0-6000 dyn•s•m^2/cm^5	0-4000 dyn•s•m^2/cm^5	
				0-600.0 kPa•s•m^2/L	0.0-400.0 kPa•s•m^2/L	
		SETTINGS		HR, PR, VPC, RR, APNEA-T, APNEA-F, NIBP, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), Tb, ST-I to ST-V6, ART, ART2, RAD, DORS, AO, FEM, UA, UV, PAP, CVP, RAP, RVP, LAP, LVP, ICP, ICP2, ICP3*1, ICP4*2, P1, P2, P3*1, P4*2, P5*2, P6*2, P7*2, PPV, SPV, Tskin, Tskin2, Tskin3*1, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1, T2, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), BIS, SQI(BIS), SR, EMG, PWTT, CCO, CCI, SV, SVI, S$\bar{v}O_2$, $ScvO_2$, EDV, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*3, DO_2I*3, VO_2*3, VO_2I*3, esCCO*3, esCCI*3, esSV*3, esSVI*3, esSVR*3, esSVRI*3, TOFrat, TOFcnt, PTC, MV*3, TVe*3, C*3, R*3, Re*3, Ri*3, Ppeak*3, Pmean*3, PEEP*3, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	GRAPH 1 LEFT1: HR LEFT2, 3: NONE RIGHT1: SpO_2 RIGHT2, 3: NONE GRAPH2 LEFT1: NIBP LEFT2, 3: NONE RIGHT1: ART RIGHT2, 3: NONE GRAPH3*4 LEFT1: T1 LEFT2, 3: NONE RIGHT1: T2 RIGHT2, 3: NONE	

*1 Not available when a BSM-3532, BSM-3552, BSM-3562, or BSM-3572 bedside monitor is used.
*2 Only available when the QI-374P interface is installed to the bedside monitor.
*3 Not available for Op No. 32A, 52A, 72A, 33A, 53A and 73A.
*4 When the QP-033P is installed, GRAPH 3 is not available.

Window	Page	Item		Setting Item	Default Setting	Backup
TREND	TABLE 1 TABLE 2 TABLE 3	SETTINGS	PARAMETER SETUP	HR, PR, VPC, RR, NIBP-SYS, NIBP-DIA, NIBP-MAP, NIBP-PR, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), Tb, ST-I to ST-V6, ART-SYS, ART-DIA, ART-MEAN, ART2-SYS, ART2-DIA, ART2-MEAN, RAD-SYS, RAD-DIA, RAD-MEAN, DORS-SYS, DORS-DIA, DORS-MEAN, AO-SYS, AO-DIA, AO-MEAN, FEM-SYS, FEM-DIA, FEM-MEAN, UA-SYS, UA-DIA, UA-MEAN, UV-MAX, UV-MIN, UV-MEAN, PAP-SYS, PAP-DIA, PAP-MEAN, CVP-MAX, CVP-MIN, CVP-MEAN, RAP-MAX, RAP-MIN, RAP-MEAN, RVP-SYS, RVP-DIA, RVP-MEAN, LAP-MAX, LAP-MIN, LAP-MEAN, LVP-SYS, LVP-DIA, LVP-MEAN, ICP-MAX, ICP2-MAX, ICP3-MAX*1, ICP4-MAX*2, ICP-MIN, ICP2-MIN, ICP3-MIN*1, ICP4-MIN*2, ICP-MEAN, ICP2-MEAN, ICP3-MEAN*1, ICP4-MEAN*2, P1-SYS, P2-SYS, P3-SYS*1, P4-SYS*2, P5-SYS*2, P6-SYS*2, P7-SYS*2, P1-DIA, P2-DIA, P3-DIA*1, P4-DIA*2, P5-DIA*2, P6-DIA*2, P7-DIA*2, P1-MEAN, P2-MEAN, P3-MEAN*1, P4-MEAN*2, P5-MEAN*2, P6-MEAN*2, P7-MEAN*2, PPV, SPV, Tskin, Tskin2, Tskin3*1, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1, T2, T3*1, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), O_2 LEV, HAL LEV, ISO LEV, ENF LEV, DES LEV, SEV LEV, BIS, SQI(BIS), SR, EMG, CCO, CCI, SV, SVI, $S\bar{v}O_2$, $ScvO_2$, EDV, EDVI, ESV, ESVI, EF, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*3, DO_2I*3, VO_2*3, VO_2I*3, esCCO*3, esCCI*3, esSV*3, esSVI*3, esSVR*3, esSVRI*3, TOFrat, TOFcnt, PTC, MV*3, TVe*3, C*3, R*3, Re*3, Ri*3, Ppeak*3, Pmean*3, PEEP*3, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	TABLE 1 1. HR, 2. PR, 3. RR, 4. SpO_2, 5. ART-SYS, 6. ART-DIA, 7. ART-MEAN, 8. CVP-MEAN, 9. T1, 10. T2, 11. CO_2(E), 12. O_2(I), 13. SEV(E), 14. SEV(I), 15. NONE TABLE2 1. HR, 2. PR, 3. VPC, 4. ST-II, 5. RR, 6. SpO_2, 7. ART-SYS, 8. ART-DIA, 9. ART-MEAN, 10. CVP-MEAN, 11. T1, 12. T2, 13. to 15. NONE TABLE3 1. HR, 2. PR, 3. RR, 4. SpO_2, 5. O_2(I), 6. T1, 7. to 15. NONE	OK
	NIBP TREND	SETTINGS	PARAMETER SETUP	HR, PR, VPC, RR, NIBP-SYS, NIBP-DIA, NIBP-MAP, NIBP-PR, CO_2(E), CO_2(I), O_2(E), O_2(I), SpO_2, PI(SpO_2), Tb, ST-I to ST-V6, ART-SYS, ART-DIA, ART-MEAN, ART2-SYS, ART2-DIA, ART2-MEAN, RAD-SYS, RAD-DIA, RAD-MEAN, DORS-SYS, DORS-DIA, DORS-MEAN, AO-SYS, AO-DIA, AO-MEAN, FEM-SYS, FEM-DIA, FEM-MEAN, UA-SYS, UA-DIA, UA-MEAN, UV-MAX, UV-MIN, UV-MEAN, PAP-SYS, PAP-DIA, PAP-MEAN, CVP-MAX, CVP-MIN, CVP-MEAN, RAP-MAX, RAP-MIN, RAP-MEAN, RVP-SYS, RVP-DIA, RVP-MEAN, LAP-MAX, LAP-MIN, LAP-MEAN, LVP-SYS, LVP-DIA, LVP-MEAN, ICP-MAX, ICP2-MAX, ICP3-MAX*1, ICP4-MAX*2, ICP-MIN, ICP2-MIN, ICP3-MIN*1, ICP4-MIN*2, ICP-MEAN, ICP2-MEAN, ICP3-MEAN*1, ICP4-MEAN*2, P1-SYS, P2-SYS, P3-SYS*1, P4-SYS*2, P5-SYS*2, P6-SYS*2, P7-SYS*2, P1-DIA, P2-DIA, P3-DIA*1, P4-DIA*2, P5-DIA*2, P6-DIA*2, P7-DIA*2, P1-MEAN, P2-MEAN, P3-MEAN*1, P4-MEAN*2, P5-MEAN*2, P6-MEAN*2, P7-MEAN*2, PPV, SPV, Tskin, Tskin2, Tskin3*1, Trect, Tcore, Tnaso, Teso, Ttymp, Tblad, Taxil, T1, T2, T3*1, N_2O(E), N_2O(I), HAL(E), HAL(I), ISO(E), ISO(I), ENF(E), ENF(I), DES(E), DES(I), SEV(E), SEV(I), O_2 LEV, HAL LEV, ISO LEV, ENF LEV, DES LEV, SEV LEV, BIS, SQI(BIS), SR, EMG, CCO, CCI, SV, SVI, $S\bar{v}O_2$, $ScvO_2$, EDV, EDVI, ESV, ESVI, EF, CF, SVR, SVRI, SVV, HRV, PCCO, PCCI, DO_2*3, DO_2I*3, VO_2*3, VO_2I*3, esCCO*3, esCCI*3, esSV*3, esSVI*3, esSVR*3, esSVRI*3, TOFrat, TOFcnt, PTC, MV*3, TVe*3, C*3, R*3, Re*3, Ri*3, Ppeak*3, Pmean*3, PEEP*3, $tcPO_2$, $tcPCO_2$, rSO_2-1 to rSO_2-4, NONE	1. NIBP-SYS, 2. NIBP-DIA, 3. NIBP-MAP, 4. NIBP-PR, 5. HR, 6. PR, 7. VPC, 8. ST-II, 9. RR, 10. SpO_2, 11. ART-SYS, 12. ART-DIA, 13. ART-MEAN, 14. CVP-MEAN, 15. T1	

*1 Not available when a BSM-3532, BSM-3552, BSM-3562, or BSM-3572 bedside monitor is used.

*2 Only available when the QI-374P interface is installed to the bedside monitor.

*3 Not available for Op No. 32A, 52A, 72A, 33A, 53A and 73A.

ALARM LIMITS Window

Vital Signs Alarms

Window	Page	Setting Item	Settings Range		Step	Default Setting	Backup
ALARM LIMITS	OTHER ALARMS	esCCO*	Upper	OFF, 0.60 to 20.00 L/min	0.1	OFF	Master
			Lower	OFF, 0.50 to 19.90 L/min		OFF	
		esCCI*	Upper	OFF, 0.60 to 20.00 L/min/m^2	0.1	OFF	
			Lower	OFF, 0.50 to 19.90 L/min/m^2		OFF	

* Not available for Op No. 32A, 52A, 72A, 33A, 53A and 73A.

esCCO Window

Window	Page	Item		Setting Item	Default Setting	Backup
esCCO	PATIENT INFO	DATE OF BIRTH		254 YEARS 11 MONTHS 30 DAYS before to the present date	—	OK
		HEIGHT	cm	0.1 to 299.9 cm	—	
			inch	0 ft 0.1 in to 9 ft 11.9 in	—	
		WEIGHT	kg	0.1 to 449.9 kg	—	
			pound	0.1 to 654.9 lb	—	
		BSA (Calculated automatically)		(Related to input height and weight data)	—	—
		GENDER		MALE, FEMALE, (blank)	(blank)	OK
	MAIN	ALARMS	esCCO	The setting items and default setting are the same as the ALARM LIMITS setting in OTHER ALARMS page.		Master
			esCCI			
	CAL	CAL CO		CO FROM PATIENT INFO, CO FROM HEMO TREND, CCO, MANUALLY ENTER	CO FROM PATIENT INFO	
		CAL PP		ART, ART 2, RAD, FEM, NIBP	ART	
	OTHER	NUMERIC DISPLAY		esCCO, esCCI, esSV, esSVI, esSVR, esSVRI	esCCO	OK
		PARAMETER FOR CURRENT TREND		esCCO, esCCI	esCCO	

HEMO GRAPH Window (QP-033P Only)

Window	Page	Item		Setting Item	Default Setting	Backup
HEMO GRAPH	TREND + TARGET	SETTINGS	TARGET GRAPH	GRAPH 1, GRAPH 2, GRAPH 3	GRAPH 1	Master
		Target graph time		30 min (2 min), 1 h (5 min), 2 h (10 min), 4 h (20 min), 6 h (30 min), 8 h (40 min), 12 h (1 h), 24 h (2 h)	1 h (5 min)	OK
		Trend time		30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 12 h, 24 h, 48 h[†1], 72 h[†1]	4 h	
	TREND	SETTINGS		HR, PR, AP, NIBP, PAP, PI, SVR, SVRI, esSVR[†3], esSVRI[†3], PAP(D), CVP(M), PPV, SPV, SVV, CCO, CCI, PCCO, PCCI, esCCO[†3], esCCI[†3], SV, SVI, esSV[†3], esSVI[†3], AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	HR, AP, CVP(M), PPV, esCCO	Master
		SCALE SETUP	HR, PR	0-100, 0-200, 0-300 bpm	0-200 bpm	
			AP, NIBP, AP(S), AP(M)	0-100, 0-200, 0-300 mmHg 0-13.5, 0-26.5, 0-40.0 kPa	0-200 mmHg 0-26.5 kPa	
			PI	0-2, 0-5, 0-20%, 0.01-100 (log)	0.01-100 (log)	
			SVR, esSVR[†3]	0-1000, 0-2000, 0-3000 dyn*s/cm^5 0-100, 0-200, 0-300 kPa*s/L	0-2000 dyn*s/cm^5 0-200 kPa*s/L	
			SVRI, esSVRI[†3]	0-2000, 0-4000, 0-6000 dyn*s*m^2/cm^5 0-200, 0-400, 0-600 kPa*s*m^2/L	0-4000 dyn*s*m^2/cm^5 0-400 kPa*s*m^2/L	
			PAP, PAP(D), CVP(M)	0-20, 0-40, 0-80 mmHg 0-2.5, 0-5.5, 0-10.5 kPa	0-40 mmHg 0-5.5 kPa	
			PPV, SPV, SVV	0-20, 0-40, 0-100%	0-40%	
			CCO, PCCO, esCCO[†3]	0-4, 0-8, 0-20 L/min	0-8 L/min	
			CCI, PCCI, esCCI	0-4, 0-8, 0-20 L/min/m^2	0-8 L/min/m^2	
			SV, esSV[†3]	0-80, 0-160, 0-300 mL	0-160 mL	
			SVI, esSVI[†3]	0-40, 0-80, 0-200 mL/m^2	0-80 mL/m^2	
			$S\bar{v}O_2$, $ScvO_2$	0-100, 50-100%	0-100%	
		Trend time		30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 12 h, 24 h, 48 h[†1], 72 h[†1]	4 h	OK
	GRAPH (Target graph)	SETTINGS	X-AXIS	PAP(D), CVP(M), PPV, SPV, SVV	GRAPH 1: PPV GRAPH 2: CVP(M)	Master
			Y-AXIS	CCO, CCI, PCCO, PCCI, esCCO[†3], esCCI[†3], SV, SVI, esSV[†3], esSVI[†3], AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	GRAPH 1: CCI GRAPH 2: AP(M)	
			TARGET AREA	ON, OFF	ON	
		SCALE SETUP	CVP(M), PAP(D)	0 to 80 mmHg (0 to 10.0 kPa)	Center Scale: 12 mmHg (1.6 kPa) Secondary Scale: 8 mmHg (1.2 kPa)	
			PPV, SPV, SVV	0 to 100%[†2]	Center Scale: 13% Secondary Scale: 10%	
			esCCO[†3], CCO, PCCO	0 to 20 L/min	3 L/min	
			esCCI[†3], CCI, PCCI	0 to 20 L/min/m^2	2.2 L/min/m^2	
			esSV[†3], SV	0 to 300 mL	30 mL	
			esSVI[†3], SVI	0 to 200 mL/m^2	20 mL/m^2	
			AP(S), AP(M)	0 to 300 mmHg (0 to 40.0 kPa)	65 mmHg (8.8 kPa)	
			$S\bar{v}O_2$, $ScvO_2$	0 to 100%	$S\bar{v}O_2$: 65%, $ScvO_2$: 70%	
		Target graph time		30 min (2 min), 1 h (5 min), 2 h (10 min), 4 h (20 min), 6 h (30 min), 8 h (40 min), 12 h (1 h), 24 h (2 h)	1 h (5 min)	OK

[†1] Only available when the QM-601P memory card is installed.
[†2] 0% is positioned at right on the target graph.
[†3] Not available for BSM-3532, BSM-3552, BSM-3733, BSM-3753.

SYSTEM SETUP Window

Window	Page		Setting Item		Setting Range	Default Setting	Backup
PARAMETERS	esCCO		esCCO MEASUREMENT		ON, OFF	ON	OK
			MASTER CAL CO		CO FROM PATIENT INFO, CO FROM HEMO TREND, CCO, MANUALLY ENTER	CO FROM PATIENT INFO	
			MASTER CAL PP		ART, ART 2, RAD, FEM, NIBP	ART	
ALARM	ALARM PRIORITY	PARAMETER 3	esCCO/esCCI*1		CRISIS, WARNING, ADVISORY	ADVISORY	
COLOR	OTHER PARAM		esCCO		Green, cyan, salmon, sky blue, yellow, light yellow, white, pink, yellow green, purple, red, orange	white	
			SVR/esSVR			yellow green	
KEYS			FUNCTION KEYS		FREEZE, TOUCHKEYS OFF, ZERO ALL, SUSPEND ALARMS, ALL ALARMS OFF*2, SUSPEND MONITORING*3, SLEEP*4, BYPASS*5, NIBP START/STOP, MARK*6, MENU, HOME, LARGE NUMERICS, DISCHARGE (Op No. 32K, 52K, 62K, 72K, 33K, 53K, 63K and 73K only), NEXT CASE (Op No. 32A, 52A, 72A, 33A, 53A and 73A only)*7, VENOUS PUNCTURE, 12 LEAD ANALYSIS, CO, PCWP, GAS, INTERBED, DRUG, LUNG FUNCTION, TIMER, TREND GRAPH, TREND DATA, RECALL, ALARM HISTORY, FULL DISC, ST TREND*8, NIBP TREND, HEMO TREND, LUNG TREND, OCRG*9, 12 LEAD, HEMO GRAPH*5, PRINT WAVE, PRINT OCRG, RECORD OCRG, RECORD WAVE, NONE	1: MENU 2: TREND GRAPH 3: ZERO ALL 4: ALARM HISTORY	
			REMOTE CONTROL KEYS			NONE	
HEMO GRAPH*5	MASTER TREND		PARAMETER		HR, PR, AP, NIBP, PAP, PI, SVR, SVRI, esSVR*10, esSVRI*10, PAP(D), CVP(M), PPV, SPV, SVV, CCO, CCI, PCCO, PCCI, esCCO*10, esCCI*10, SV, SVI, esSV, esSVI, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	HR, AP, CVP(M), PPV, esCCO*10	
			SCALE	HR, PR	0-100, 0-200, 0-300 bpm	0-200 bpm	
				AP, NIBP, AP(S), AP(M)	0-100, 0-200, 0-300 mmHg 0-13.5, 0-26.5, 0-40.0 kPa	0-200 mmHg 0-26.5 kPa	
				PI	0-2, 0-5, 0-20%, 0.01-100 (log)	0.01-100 (log)	
				SVR, esSVR*10	0-1000, 0-2000, 0-3000 dyn*s/cm^5 0-100, 0-200, 0-300 kPa*s/L	0-2000 dyn*s/cm^5 0-200 kPa*s/L	
				SVRI, esSVRI*10	0-2000, 0-4000, 0-6000 dyn*s*m^2/cm^5 0-200, 0-400, 0-600 kPa*s*m^2/L	0-4000 dyn*s*m^2/cm^5 0-400 kPa*s*m^2/L	
				PAP(D), PAP, CVP(M)	0-20, 0-40, 0-80 mmHg 0-2.5, 0-5.5, 0-10.5 kPa	0-40 mmHg 0-5.5 kPa	
				PPV, SPV, SVV	0-20, 0-40, 0-100%	0-40%	
				CCO, PCCO, esCCO*10	0-4, 0-8, 0-20 L/min	0-8 L/min	
				CCI, PCCI, esCCI*10	0-4, 0-8, 0-20 L/min/m^2	0-8 L/min/m^2	
				SV, esSV*10	0-80, 0-160, 0-300 mL	0-160 mL	
				SVI, esSVI*10	0-40, 0-80, 0-200 mL/m^2	0-80 mL/m^2	
				$S\bar{v}O_2$, $ScvO_2$	0-100, 50-100%	0-100%	

*1 Not available for Op No. 32A, 52A, 72A, 33A, 53A and 73A.
*2 Available when site is ICU or NICU and alarm off type is set to "ALL ALARMS OFF", or when site is OR and alarm inactivation and alarm off type are set to "ALL ALARMS OFF".
*3 Available only when alarm inactivation is set to "SUSPEND ALARMS".
*4 Available only when site is ICU or NICU and alarm inactivation is set to "SUSPEND ALARMS".
*5 Available only when site is OR and alarm off type is "BYPASS".
*6 Available only when the QP-033P is installed.
*7 Available only when site is OR.
*8 When site is NICU, available only when ST measurement is set to "ON".
*9 Available only when site is NICU.
*10 Not available for BSM-3532, BSM-3552, BSM-3733, BSM-3753.

Window	Page	Setting Item		Setting Range	Default Setting	Backup
HEMO GRAPH*1	MASTER TARGET	X-AXIS		PAP(D), CVP(M), PPV, SPV, SVV	Graph 1: PPV Graph 2: CVP(M)	OK
		Y-AXIS		CCO, CCI, PCCO, PCCI, esCCO*2, esCCI*2, SV, SVI, esSV*2, esSVI*2, AP(S), AP(M), $S\bar{v}O_2$, $ScvO_2$	Graph 1: CCI Graph 2: AP(M)	
		SCALE	CVP(M), PAP(D)	0 to 80 mmHg (0 to 10.0 kPa)	Center Scale: 12 mmHg (1.6 kPa) Secondary Scale: 8 mmHg (1.2 kPa)	
			PPV, SPV, SVV	0 to 100%*3	Center Scale: 13% Secondary Scale: 10%	
			esCCO*2, CCO, PCCO	0 to 20 L/min	3 L/min	
			esCCI*2, CCI, PCCI	0 to 20 L/min/m^2	2.2 L/min/m^2	
			esSV*2, SV	0 to 300 mL	30 mL	
			esSVI*2, SVI	0 to 200 mL/m^2	20 mL/m^2	
			AP(S), AP(M)	0 to 300 mmHg (0 to 40.0 kPa)	65 mmHg (8.8 kPa)	
			$S\bar{v}O_2$, $ScvO_2$	0 to 100%	$S\bar{v}O_2$: 65%, $ScvO_2$: 70%	
		TARGET AREA		ON, OFF	ON	
		TREND + TARGET		GRAPH 1, GRAPH 2, GRAPH 3	GRAPH 1	

*1 Available only when the QP-033P is installed.
*2 Not available for BSM-3532, BSM-3552, BSM-3733, BSM-3753.
*3 0% is positioned at right on the target graph.

Specifications

Measuring Range

esCCO: 0.50 to 20.00 L/min
esCCI: 0.50 to 20.00 L/min/m^2
esSV: 0 to 300 mL
esSVI: 0 to 200 mL/m^2

Reproducibility

esCCO: ±5% or 0.1 L/min whichever is larger
esCCI: ±5% or 0.1 L/min/m^2 whichever is larger
esSV: ±5%
esSVI: ±5%

Display resolution

esCCO: 0.01 L/min
esCCI: 0.01 L/min/m^2
esSV: 1 mL
esSVI: 1 mL/m^2

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Contact information is accurate as of Jan 2015. Visit www.nihonkohden.com for the latest information.

The model and serial number of your instrument are identified on the rear or bottom of the unit.
Write the model and serial number in the spaces provided below. Whenever you call your representative concerning this instrument, mention these two pieces of information for quick and accurate service.

Model _____ Serial Number _____

Your Representative