AS/3™ Compact Anesthesia Monitor upgraded with U-LIFE2

User's Guide
Part I: For Monitor Setup and Reference

Datex·Ohmeda

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Datex-Ohmeda
AS/3 Compact Anesthesia Monitor upgraded with U-LIFE2

User's Guide

Part I: For Monitor Setup and Reference

Related to software licenses L-ANE03 and L-ANE03A

CE
0537

Conformity according to the Council Directive 93/42/EEC concerning Medical Devices

About this guide

This User's Guide describes the most common features and functions offered by the Datex-Ohmeda AS/3 Compact Anesthesia Monitor. Descriptions refer to S/5 software licenses L-ANE03 and L-ANE03A.

If you are a new user of the monitor, we suggest you begin with sections "Safety precautions" "System introduction" and "Monitoring basics." Also read Part II of this User's Guide.

The following conventions are used:

− Names of the hard keys on the Command Board, Remote Controller and modules are written in the following way: **ECG.**
− Menu items are written in bold italic typeface: ***ECG Setup***.
− Menu access is described from top to bottom. For example, the selection of the ***Screen Setup*** menu item and the ***Waveform Fields*** menu item would be shown as ***Screen Setup*** - ***Waveform Fields***.
− Messages (alarm messages, informative messages) displayed on the screen are written inside single quotes: 'Learning'.
− When referring to different sections in this manual, section names are enclosed in double quotes: "Cleaning and care."
− In this manual, the word "select" means choosing and confirming.

Related documentation

Clinical aspects, basic methods of measurement and technical background: S/5 Compact Anesthesia Monitor, User's Reference Manual
Instructions for daily use: AS/3 Compact Anesthesia Monitor upgraded with U-LIFE2, User's Guide Part II
Installation, technical solutions and servicing: AS/3 and CS/3 Compact Monitors upgraded with U-LIFE2 and S/5 Modules, Technical Reference Manuals
Options and selections of the software: Default Configuration Worksheet
Other devices closely related to the AS/3 Compact Anesthesia Monitor: S/5 Central and S/5 Arrhythmia Workstation User's Reference Manuals

Intended purpose (Indications for use)

The Datex-Ohmeda AS/3 Compact Anesthesia Monitor upgraded with L-ANE03 or L-ANE03A software is intended for multiparameter patient monitoring with optional patient care documentation.

The AS/3 Compact Anesthesia Monitor upgraded with L-ANE03 or L-ANE03A software is indicated for monitoring of hemodynamic (including arrhythmia and ST-segment analysis), respiratory, ventilatory, gastrointestinal/regional perfusion, Bispectral index (BIS), Entropy (State Entropy and Response Entropy) and neurophysiological status of all hospital patients.

The AS/3 Compact Anesthesia Monitor with L-ANE03 and L-ANE03A software when using BIS is for monitoring the state of the brain by data acquisition and processing of electroencephalograph signals and may be used as an aid in monitoring the effects of certain anesthetic agents.

The AS/3 Compact Anesthesia Monitor with L-ANE03 or L-ANE03A software is also indicated for documenting patient care related information.

The AS/3 Compact Anesthesia Monitor with L-ANE03 or L-ANE03A software is indicated for use by qualified medical personnel only.

Classifications

In accordance with IEC 60601-1:

− Class I and internal powered equipment - the type of protection against electric shock.
− Type BF or CF equipment. The degree of protection against electric shock is indicated by a symbol on each parameter module.
− Equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
− Continuous operation according to the mode of operation.

In accordance with IEC 60529:

− IPX1 - degree of protection against harmful ingress of water

In accordance with EU Medical Device Directive: IIb

Responsibility of the manufacturer

Datex-Ohmeda Division, Instrumentarium Corp. is responsible for the safety, reliability and performance of the equipment only if:

− assembly, extensions, readjustments, modifications, service and repairs are carried out by personnel authorized by Datex-Ohmeda.
− electrical installation complies with appropriate requirements.
− the equipment is used in accordance with this User's Guide.

Contents

Trademarks

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A portion of the entropy software is derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm.

Safety precautions

These precautions refer to the entire system. Warnings and cautions specific to parts of the system can be found in the relevant section.

Warnings

A WARNING indicates a situation in which the user or the patient may be in danger of injury or death.

- Connect only one patient to the monitor at a time.
- Use only hospital-grade grounded power outlets and power cord.
- Some equipment malfunctions may not generate a monitor alarm. Always keep the patient under close surveillance.
- To avoid explosion hazard, do not use the monitor in presence of flammable anesthetics. The monitor measures only non-flammable anesthetics.
- Do not use the monitor in high electromagnetic fields (for example, during MRI).
- Do not touch battery operated monitor during defibrillation procedure.
- If the integrity of the external protective earth conductor arrangement is in doubt, use the monitor with battery operation.
- Do not connect any external devices to the system other than those specified by Datex-Ohmeda.
- Keep the monitor horizontal when the Compact Airway Module is used. Tilting the monitor may cause erroneous results in the Compact Airway Module's readings and damage the module.
- Do not touch the patient, table, instruments or the monitor during defibrillation.
- If the integrity of the external protective earth conductor arrangement is in doubt, use the monitor with battery operation.

- Use only accessories and defibrillator-proof cables and invasive pressure transducers approved by Datex-Ohmeda. Other cables, transducers and accessories may cause a safety hazard, damage the system, result in increased emissions or decreased immunity of the system or interfere with the measurement. Protection against cardiac defibrillator discharge is due in part to the accessories for pulse oximetry (SpO_2), temperature (T) and invasive pressure (P) measurement.
  Single-use accessories are not designed to be re-used. Re-use may cause a risk of contamination and affect the measurement accuracy.
- The monitor or its components should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the monitor and its components should be observed to verify normal operation in the configuration in which it will be used.
- Pins of connectors identified with the ESD warning symbol should not be touched. Connections should not be made to these connectors unless ESD precautionary procedures are used. See "Safety precautions: ESD precautionary procedures" in the "User's Reference Manual" for details.
- If liquid has accidentally entered the equipment, disconnect the power cord from the power supply and have the equipment serviced by authorized service personnel.
- If the unit fails to respond as described, do not use the monitor until tested and repaired by authorized service personnel.

Cautions

A CAUTION indicates a situation in which the unit or devices connected to it may be damaged.

- Before connecting the power cord to the power supply, check that the local voltage and frequency correspond with the rating stated on the device plate on the rear panel of the monitor.
- Turn off the power before making any rear panel connections.
- Vibrations during transport may disturb SpO_2, ECG, impedance respiration and NIBP measurements.
- Leave space for circulation of air to prevent the monitor from overheating.
- Do not store or use the monitor outside the temperature and humidity ranges specified in the "Performance" section of this manual.
- Refresh the batteries completely once a month (see section "Cleaning and care").
- Do not subject memory cards to excessive heat, bending or magnetic fields.

Disposal

Dispose of the whole device or parts of it in accordance with local environmental and waste disposal regulations.

Points to note

- Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the "Technical Reference Manual" by qualified Datex-Ohmeda trained personnel.
- Portable and mobile RF communications equipment can affect the medical electrical equipment.
- The allowed Datex-Ohmeda cables, transducers and accessories for the system are listed in the "Supplies and accessories" section of this manual.
- The equipment is suitable for use in the presence of electrosurgery. Please notice the possible limitations in the parameter sections and in the "Performance" section.
- Service and reparations are allowed for authorized service personnel only.

Symbols

Attention, consult accompanying documents.

— When displayed next to the O_2 value, indicates that the FiO_2 low alarm limit is set below 21 %.
— When displayed next to the HR value, indicates that the pacer is set on R or a wide QRS is selected.
— BIS: On the Aspect DSC indicates that the converter must not be opened for any reason, or autoclaved.
— On the interface module, M-INT, indicates that it is for connecting external devices. Do not connect patient cables to the module.
— On the M-PRESTN, M-PRETN and M-RESTN module indicates that protection against cardiac defibrillator discharge is due in part to the accessories for pulse oximetry (SpO_2), temperature (T) and invasive pressure (P) measurement.
— On the M-TONO module indicates that the module should be used only with Tonometrics catheters.
— On the rear panel this symbol indicates the following warnings and cautions:
  - Electric shock hazard. Do not open the cover or the back. Refer servicing to qualified personnel.
  - For continued protection against fire hazard, replace the fuse only with one of the same type and rating.
  - Disconnect from the power supply before servicing.
  - Do not touch battery operated monitor during defibrillation.
  - Lithium battery on CPU board: follow the local regulations for disposal.

Type BF (IEC 60601-1) protection against electric shock

Type BF (IEC 60601-1) defibrillator-proof protection against electric shock

Type CF (IEC 60601-1) protection against electric shock

Type CF (IEC 60601-1) defibrillator-proof protection against electric shock

When displayed in the upper left corner of the screen, indicates that the alarms are silenced. When displayed in the menu or digit fields, indicates that the alarm source has been turned off or alarm does not meet the alarm-specific activation criteria.

Equipotentiality. Monitor can be connected to potential equalization conductor.

Alternating current

Fuse. Replace the fuse only with one of the same type and rating.

Battery operation and remaining capacity (green bar)

Battery charging (white bar)

The monitor is connected to the Datex-Ohmeda Network.

Data Card (green) and/or the Menu Card (white) is inserted.

ESD warning symbol for electrostatic sensitive devices. Pins of connectors identified with the ESD warning symbol should not be touched. Connections should not be made to these connectors unless ESD precautionary procedures are used. See "Safety precautions: ESD precautionary procedures" in the "User's Reference Manual" for details.

Symbol for non-ionizing electromagnetic radiation. Interference may occur in the vicinity of equipment marked with this symbol.

SN, S/N   Serial number

Submenu. Selecting a menu item with this symbol opens a new menu.

A blinking heart next to the heart rate or pulse rate value indicates the beats detected.

A lung next to the respiration rate value indicates that respiration rate is calculated from the impedance respiration measurement.

System introduction

(1) AS/3 Compact Anesthesia Monitor with modules inside

(2) Remote Controller, K-REMCO

(3) Printer

(4) Datex-Ohmeda Network
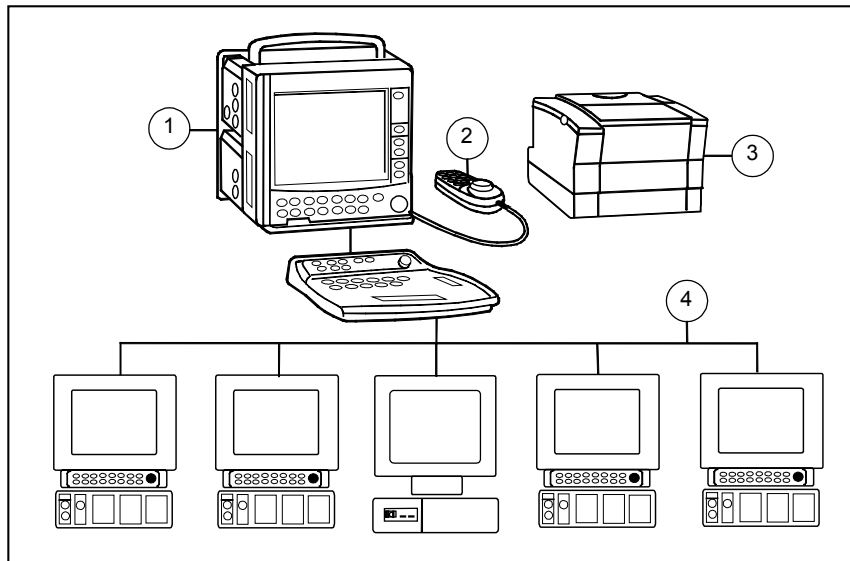
NOTE: Your system may not include all these components.
NOTE: Connect only one patient to the Compact Anesthesia Monitor at a time.

NOTE: After transferring or reinstalling the monitor, always check that it is properly connected and securely attached.

NOTE: The monitor display is fragile. Ensure that it is not placed near a heat source or exposed to mechanical shocks, pressure, moisture, or direct sunlight.

WARNING: Before starting to use the system, ensure that the entire combination complies with the international standard IEC 60601-1-1 and with the requirements of the local authorities. Do not connect any external devices to the system other than those specified by Datex-Ohmeda.

WARNING: A printer must be supplied from an additional transformer providing at least basic isolation (isolating or separating transformer).

WARNING: Never install the monitor so that it is above the patient.

AS/3 Compact Anesthesia Monitor connections
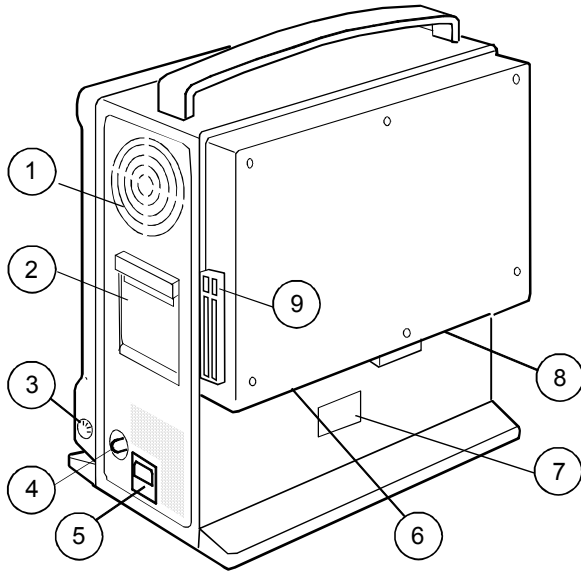
(1) Air filter
(2) Built-in recorder (optional)
(3) Connector for anesthesia record keeping keyboard and Remote Controller
(4) Potential equalization
(5) Receptacle for power cord
(6) Place for network connector B-NET
(7) Device plate
(8) Place for network connector B-UPINET or B-UPI
(9) Insertion slots for memory cards (optional)

System possibilities

The Datex-Ohmeda AS/3 Compact Anesthesia Monitor provides places for up to four single-width or two double-width modules. You can use the same modules and patient accessories in the Compact Anesthesia Monitor, Compact Critical Care Monitor, Anesthesia Monitor, and Critical Care Monitor.

Optional components for the AS/3 Compact Anesthesia Monitor are:
- built-in recorder in the F-CMREC frame or the recorder module, M-REC
- network functionality with B-UPINET board or B-CMNET board
- Data card and MemCard functionality with memory board, B-CMMEM, or the memory module, M-MEM

Communication between monitors

You can use the AS/3 Compact Anesthesia Monitor as a stand-alone monitor or for
- viewing and receiving data (alarms, vital signs) from other patient monitors
- gathering and storing data during transportation.

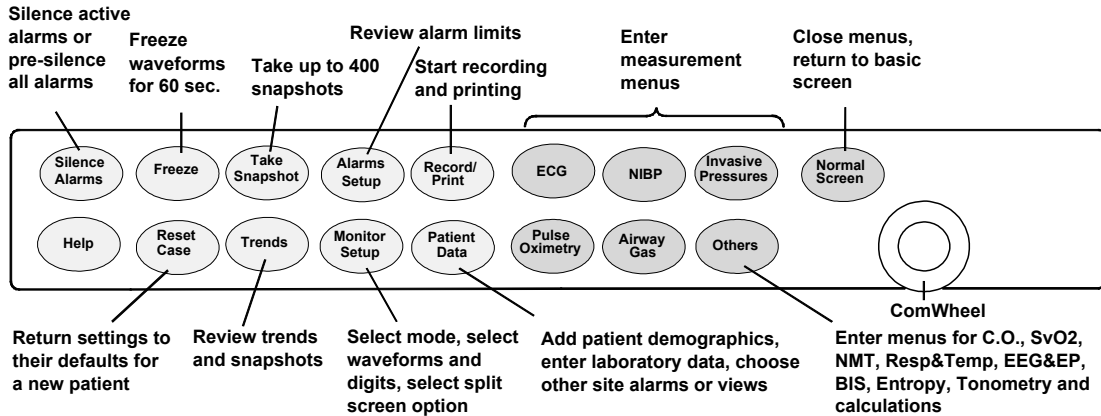To view other patient monitors, the monitor needs to be connected to the Datex-Ohmeda Network. To gather, store, and transfer data between different Datex-Ohmeda monitors, use memory cards.

The green Data Card is for storage and transfer of patient data. The white Menu Card is used for storing the anesthesia record keeping menus and configurations, and for loading patient data and user modes from the Data Card.

Monitoring basics

You can control monitoring through the keys on the monitor's Command Board and side panels, modules , anesthesia record keeping keyboard and Remote Controller. The commands introduced in this User's Guide mainly focus on the Command Board hard keys and module keys.

Command Board - functions of some hard keys

Silence active alarms or pre-silence all alarms

Freeze waveforms for 60 sec.

Take up to 400 snapshots

Review alarm limits

Start recording and printing

Enter measurement menus

Close menus, return to basic screen

Silence Alarms	Freeze	Take Snapshot	Alarms Setup	Record/Print	ECG	NIBP	Invasive Pressures	Normal Screen
Help	Reset Case	Trends	Monitor Setup	Patient Data	Pulse Oximetry	Airway Gas	Others	

ComWheel

Return settings to their defaults for a new patient

Review trends and snapshots

Select mode, select waveforms and digits, select split screen option

Add patient demographics, enter laboratory data, choose other site alarms or views

Enter menus for C.O., SvO2, NMT, Resp&Temp, EEG&EP, BIS, Entropy, Tonometry and calculations

Side panel keys

There are keys on the monitor's side panel for ON/Standby, NIBP, Invasive Pressures and Recorder functions. With these keys, you can start or end a function immediately.

NOTE: Recorder functions are available with the optional internal recorder or recorder module only.

Remote Controller

The Remote Controller allows access to the same menus as the Command Board. It also has some direct function keys that start or end a function immediately. To enter functions that do not have their own key, press the **Menu** key.

Enter other menus
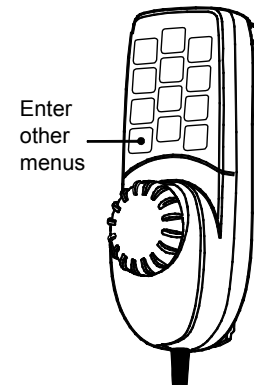
Navigating in menus

A menu is a list of functions or commands. To display a menu, press one of the hard keys. Selections in the menus are made with the ComWheel. For example, to change the ECG display:

1. **Press the key** to open the function menu.
2. **Turn the ComWheel** to select the desired function in the menu.
3. **Push the ComWheel** to open a submenu or an adjustment window.
4. **Push the ComWheel** to confirm the selection.

Common parts for modules

(1) Insertion guide slot
(2) Module keys
(3) Patient cable connectors
(4) Module release latch

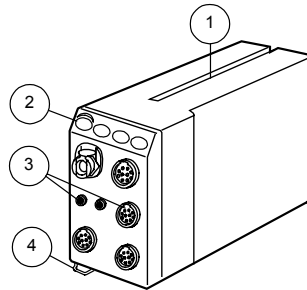## Inserting a module

1. Align the module with the insertion guide.
2. Push the module into the Compact Monitor frame until it clicks.

Removing a module

1. Press the release latch.
2. Pull out the module.

You can connect and disconnect modules during monitoring.

Identical modules

Some modules are identical and cannot be used in the same system. See the following table when choosing modules for different parameters.

To monitor:	Select only one of these identical modules
ECG (E), NIBP (N), SpO_2 (S), Temp (T), Pressure (P) or Resp (R)	M-PRESTN, M-PRETN, M-RESTN, M-NE(12)STPR, M-NE(12)TPR, M-NE(12)STR, M-ESTPR, M-ETPR, M-ESTR, M-ESTP, M-EST or M-ETP.
	NOTE: M-ESTP rev. 01, M-EST rev. 00 and M-ETP rev. 00 work only with S-STD93, S-STD94, S-ARK94, S-STD95, S-ARK95, S-STD96 and S-ARK96 software.
	NOTE: M-PRESTN, M-PRETN and M-RESTN work only with L-ANE01(A) and with rev. 10.9 of S-00A01, S-00A02, L-00A03 and L-00A04 software, or later versions.
NIBP (N)	M-NIBP, M-PRESTN, M-PRETN, M-RESTN, M-NE(12)STPR, M-NE(12)TPR, M-NE(12)STR
Pressure (P)	M-P, M-PP or M-PT
C.O. (CO), Pressure (P) or SvO_2 (Sv)	M-COP or M-COPSv
CO_2 (C), O_2 (O), Spirometry (V), anesthetic agents(A), agent identification (i), gas exchange (X)	M-CO, M-COV, M-CAiOV, M-CAiO, M-CAiOVX, M-miniC
Separate SpO_2 measurement	M-NSAT or M-OSAT
	NOTE: M-NSAT and M-OSAT can be used with M-PRESTN, M-PRETN, M-RESTN, M-NE(12)STPR, M-NE(12)STR, M-ESTPR, M-ESTR, M-ESTP and M-EST. The SpO_2 measurement in M-NSAT and M-OSAT automatically overrides the SpO_2 measurement in these modules.

The following parameters have no identical modules:

NMT	M-NMT
EEG and AEP	M-EEG
Tonometry (PgCO2)	M-TONO
BIS	M-BIS
Entropy	M-ENTROPY

Setting up the monitor before use

Before starting to use the monitor, check the monitor installation settings and what is configured in different user modes, and make the necessary changes. The user modes are hospital-specific. The default modes are CPB Mode, General, Invasive, Regional, Neuro, Pediatric and Recovery.
If you wish to make permanent changes, we recommend that you contact the person responsible for the configuration of the system. For more information about the default user modes, see the "Default Configuration Worksheet" delivered with the monitor. For more information about the installation settings and user modes, see the "User's Reference Manual."

Passwords

The default password for entering the *Install/Service* menu is
`16 4 34`.
The default password for entering the *Save Modes* menu is
`13 20 31`.

Interfacing

1. Press **Monitor Setup** and select *Interfacing*.
2. Select desired interfaced internal modules or external monitors.

Setting time and date

NOTE: If the monitor is connected to the S/5 Central, it follows the Central's time settings and the *Time and Date* menu is not available.

NOTE: You cannot change the monitor's time settings after the case has been started.

1. Press **Monitor Setup** and select *Time and Date*.
2. Turn and push the ComWheel to set the time and date.

Changing the monitor installation settings

The monitor installation settings are the same in all user modes. The changes are preserved until changed again.
Press **Monitor Setup** and select *Install/Service*, enter the password and select *Installation:*

Printer

ECG Printout Type: Select *25 mm*, *50 mm* or *USA*.
Snapshot Printout: Select *12.5* or *25 mm/s*.
Printer Connection: Select printer connection (default: *None)*.
Paper Size: Select *A4* or *Letter* (default *A4*).

Alarm options

Show limits: Select *YES* to show alarm limits in digit fields.
Audio OFF: Select *NO* to disable alarm silencing. This hides the silencing options in the *Audio ON/OFF* menu in *Alarms Setup*.
Latching Alarms: Select *YES* to keep alarm messages on screen until **Silence Alarms** key is pressed.
Reminder Volume: Adjust volume of audible alarm reminder tone.
Alarm Tones: Select alarm tones.

Display setup

Change the number of colors on the display (the result depends on the LCD display type.)

Monitor settings

Monitor Type: Monitor type defines the text on the start screen.
ARRWS Network: Select *YES* if Arrhythmia Workstation is in the network.
ARK Settings: Set *Record Keeping ON/OFF* and change settings.
Parameter Settings: Set tidal volume calculation conditions, CO_2 humidity compensation and inspired flow drawing direction.

Units

- Change units for height, weight, parameters, energy expenditure, laboratory values and calculations.
- You can change temperature units in the *Temp Setup* menu (**Others** - *Resp&Temp Setup* - *Temp Setup*) and CO_2 units in the *CO2 Setup* menu (**Airway Gas** - *CO2 Setup*). The changes are permanent.

Changing the user modes

NOTE: If you want to make changes in user modes, we recommend you contact the person responsible for the configuration. When new settings are saved, they should be marked in the "Default Configuration Worksheets." See below for instructions on how to change the modes permanently.

Select the user mode you wish to change by pressing **Monitor Setup** and selecting *Select Mode*.

1. To make changes in:
- sweep speed, parameter colors, screen setup, Normal Screen layout, pages layout, trends, snapshots, press **Monitor Setup**. If necessary, select *Install/Service*. For instructions, see below.
- parameter setup, press a parameter key and go to the setup menu. For instructions, see parameter sections in User's Guide Part II.
- alarm limits and volume, press **Alarms Setup**. For instructions, see section "Alarms" in User's Guide Part II.
3. Confirm changes through **Monitor Setup** - *Install/Service* - *Save Modes* - *Save*. You can save the changes also in other modes. If you do not save the changes in the modes, they are temporary and valid only until you reset the case or change the mode or until more than 15 minutes has elapsed from the turn-off of the monitor. Entering *Save Modes* requires a password, see "Passwords."

Changing the startup mode

1. Select **Monitor Setup** - *Install/Service* - *Save Modes*.
2. Select *Startup Mode* - *1*, *2*, *3*, *4*, *5* or *6*.

Renaming a mode

1. Select **Monitor Setup-** *Install/Service* - *Save Modes*.
2. Select the mode, select *Name* and give a new name.

Loading modes

1. Select **Monitor Setup** - *Install/Service* - *Save Modes*.
2. Select *Load Modes* and load from/to card or from/to network.
NOTE: To load modes from the Data Card, you need the Menu Card in the other slot.

Changing the waveform sweep speeds

1. Select **Monitor Setup** - *Sweep Speeds*.
2. Select the parameters and adjust the values. Slow waveforms show the amplitude changes better.

Changing the parameter colors

To change the colors for parameter waveforms, digits and trends, select **Monitor Setup** - *Install/Service* -*Colors*.

Changing the recorder settings

1. Press **Record/Print.**
2. Select *Record Waveforms* and select the recorded waveforms, delay, paper speed and length, and select if you wish to record waveforms on alarms.
3. Select *Record Trends* and set the numerical trend resolution and trend type, default trend type, and select the graphical trend recorded in upper and lower field.

Changing the printer settings

Select **Record/Print** - *Print Graphical* and select the pages to print and how many hours to print on one page.

Setting the Normal Screen format

Press **Monitor Setup** and select *Screen Setup*.

- *Waveform Fields*: Select the displayed waveforms.
- *Digit Fields*: Change the contents of a field or turn it off.
- *Split Screen*: Select what you wish to display with the waveforms (minitrends, spirometry, EEG, EP, ST or *None*).
- *Minitrend Length*: Select the length of the minitrend.

Changing the layout of other pages

You can check the contents of the pages by pushing the ComWheel in Normal Screen. To change the layout of the pages:

1. Press **Monitor Setup** and select *Install/Service -Pages Setup.*
2. Select the page and make the changes.

Setting the default trend

You can select graphical or numerical trends to be displayed by default.

1. Press **Monitor Setup** and select *Install/Service - Trends & Snapshot*.
2. Select *Default Trends* and *Graph* or *Num*.

Configuring trends

To set the parameters displayed on the graphical trend pages:

1. Press **Monitor Setup** and select *Install/Service - Trends & Snapshots - Graphical Trends*.
2. Select the graphical trend page you want to change.
3. Select parameters for fields.

Setting trend length and time scale

Press **Trends**.

- Select *Time Scale* and the value.
- Select *Trend Scales* and adjust the scales.

Configuring snapshots

To change the snapshot setting, press **Monitor Setup** and select *Install/Service - Trends & Snapshots - Snapshot*:

- *Field x:* Select to display waveform, graphical trend or numerical trend.
- *Create on Alarms*: Select *Yes* (default) to create automatic snapshots for Tachy, Brady, Art high, Art low alarms. You can select other arrhythmia alarms to create snapshots through the *Arrhythmia Alarms* menu.
- *Automatic Print*: Select *All* to print all the snapshots immediately after creation, *Alarms* to print snapshots created on alarms or *No* to print only on request.
- *Print Loops*: Select *Yes* to print Patient Spirometry loops when snapshots are taken.

Cleaning and care

Daily and between patients	Once a month	Every six months
• Wipe the monitor surface. • Wipe the ECG trunk cable, NIBP cuff and cables and SpO$_2$ sensors. • Change or sterilize all airway and invasive patient accessories. • Clean, disinfect or sterilize reusable temperature probes. • Change the Tonometrics catheter between patients. • Empty the D-fend water trap, see below. • Change the BIS sensor between patients. • Change the entropy sensor between patients. • Check that the accessories, cables and monitor parts are clean and intact.	• Perform gas calibration for gas exchange monitoring, see below. • Refresh the batteries, see below. • Check the fan filter on the monitor's side panel, on the gas module's front panel and under the display unit. Clean if necessary: 1. Pull out the filter. 2. Wash it in detergent solution and allow to dry before reinserting. Do not use pressurized air. Replace the filter if it is damaged. • Change the D-fend water trap every two months and when 'Replace D-fend' appears.	• Perform gas calibration for tonometry and airway gas monitoring, see below.
Permitted detergents	**Permitted disinfectants**	**DO NOT !**
— Datex-Ohmeda Cleaning Fluid — Other mild detergents	— Ethanol — Isopropyl alcohol — Chlorite compounds — Glutaraldehyde	• Do not use hypochlorite, acetone-, phenol- or ammonia based cleaners. • Do not autoclave the device or its parts. • Do not immerse any part of the device in liquids, or allow liquid to enter the interior. • Do not apply pressurized air to any outlet or tubing connected to the monitor.
NOTE: For details about cleaning, disinfecting and sterilizing the accessories, see the instructions for use in the accessory package.		

Before cleaning
1. Turn off the monitor from the power switch.
2. Disconnect the power cord.

After cleaning
1. Let dry completely.
2. Reconnect the power cord and turn on the monitor.

More comprehensive checking
See the "Technical Reference Manual."

WARNING: After cleaning or if liquid has accidentally entered the monitor, ensure that every part of the monitor is dry before reconnecting it to the power supply.

D-fend water trap

- Empty the container whenever half full.
- Change the D-fend or Mini D-fend water trap every two months and when 'Replace D-fend' appears.
- The water trap cartridge is disposable. Do not wash or reuse the cartridge.
- Change the green D-fend+ water trap every 24 hours and when 'Replace D-fend' appears.

Reusable D-lite sensor

The reusable D-lite sensor can be washed in a washing machine and steam autoclaved. Make sure that the sensor is dry and connectors are not damaged. A tight connection is essential for correct measurement.

Other accessories

For information on how to clean and check reusable accessories, see the accessory package. Do not reuse single-use disposable accessories.

Refreshing the batteries

1. Turn on the monitor.
2. Connect the monitor power cord to power supply for at least 10 hours.
3. Remove the power cord and wait until the monitor turns off. Then wait for another 15 minutes.
4. Reconnect the power cord to power supply and charge the battery for at least 10 hours.

Changing fuses

1. Remove the power cord.
2. Remove the fuse holder by pushing the locking pin and pulling the holder gently out.
3. If a fuse is blown, ensure that you replace it with a fuse of the correct type and rating.

Calibrating

1. Turn on the power. Let the monitor warm up for 30 minutes.
2. Attach a regulator to the calibration gas container.

NOTE: % is used for CO_2 regardless of selected units.
NOTE: See section "Supplies and accessories" for correct regulator and gas.
NOTE: Ensure that the calibration gas and regulator are functioning properly before calibration. Perform annual maintenance on the regulator as required.

Calibrating airway gases

Follow the recommended calibration intervals (every six months in normal use and every two months in continuous use) to ensure that the measurement accuracy remains within specifications.

1. Attach a new sampling line to the water trap. Connect the other end of the sampling line to the regulator on the gas container.
2. Press the **Airway Gas** key.
3. Select *Gas Calibration*.
4. Wait until the texts 'Zero OK' and then 'Feed Gas' appear on the screen, open the regulator and start feeding gas. Push the ComWheel and continue feeding gas until the text 'Adjust' is displayed.
5. Check that the displayed gas values match the values on the calibration gas container. Adjust with the ComWheel, if necessary.

NOTE: Calibrate M-miniC module with calibration gas 755580 only and set the O_2 concentration to 20%.

Calibrating Patient Spirometry

Perform flow calibration once a year or when the difference between the inspiratory and expiratory volumes is permanent. See the "Technical Reference Manual" for more information.

Calibrating gas exchange

To ensure gas exchange accuracy, perform the airway gas calibration once a month and patient spirometry calibration once a year.
Use 2-m (7-ft) airway gas sampling line.

Calibrating tonometry

1. Connect the calibration gas sampling line to the D-gate regulator and to the module's catheter connector.
2. Press the **Others** key and select *Tonometry - PgCO2 Calibration*.
3. Wait until the text 'Feed gas' appears. Open the regulator and start feeding gas until the text 'Adjust' appears.
4. Close the regulator.
5. Check that the displayed values match the values on the calibration gas container. Adjust with the ComWheel, if necessary, and confirm.
6. If airway gases are monitored, calibrate the gas module at the same time.

NOTE: Use only Datex-Ohmeda Calibration gas sampling line; wrong line length or diameter can cause incorrect calibration.

NOTE: Do not wash or disinfect calibration gas sampling lines.

Calibration check of temperature, NIBP and invasive blood pressures

Calibration check of temperature, NIBP and invasive blood pressures should be performed at least once a year by qualified service personnel as a part of the Planned Maintenance, see the "Technical Reference Manual."

Alarm basics

Enabling the alarms

To enable the alarms, connect the patient cables. If the alarm source is selected, the alarms are operative also when the measurement is not displayed (except the respiration measurement alarms).

Alarm indications

When an alarm becomes active, messages appear in the order of priority. The alarming measurement value flashes and its background color indicates the alarm category (see the table below). In some cases, there may be a message on the display giving more detailed information. An audible alarm is also triggered.

For details about alarms, see section "Alarms" in User's Guide Part II.

NOTE: If the monitor is connected to the network, the alarms can be heard and seen on the S/5 Central as well. Please consult the "Datex-Ohmeda S/5 Central User's Reference Manual: Alarms" for details.

Alarm categories
The priority depends primarily on the cause and alarm duration.

Visual	Meaning	Tone pattern (selected when the system is configured)	Front panel LED
Red	For life threatening situations	Triple + double beep every 5 seconds or continuous beep --- -- 5 --- --/ -----	red LED lit
Yellow	For serious but not life threatening problems	Triple beep every 19 seconds or double beep every 5 seconds --- 19 --- / -- 5 -- 5 --	yellow LED blinking
White	Advisory	Single beep -	yellow LED lit

Performance

WARNING: Operation of the monitor outside the specified values may cause inaccurate results.

Datex-Ohmeda Compact Anesthesia Monitor

Power supply
Rated voltages and
frequencies: 100 to 240 V 50/60 Hz
Allowed voltage
fluctuations: ±10 %
Max. power
consumption: 140 VA

Battery operation
Batteries: NiCd
Charging time: 5 hours
Operation time: up to 1 hour

Environmental conditions
Operating
temperature: +10 to+35°C (50 to 95°F)
Storage and transport
temperature: -10 to +50°C (14 to 122°F)
Relative humidity: 10 to 90 % noncondensing,
  in airway   0 to 100 % condensing
Atmospheric
pressure: 660 to 1060 mbar
                          (500 to 800 mmHg)

Alarm behavior
The maximum alarm delay of the alarm at the monitor signal output to network: 1.1 seconds
If the alarm mode is latched, the technical alarms are latched as well. This does not comply with the NIBP (IEC 60601-2-30) and invasive pressure (IEC 60601-2-34) standard requirements. Silencing alarms for 5 minutes does not comply with the SpO_2 (ISO 9919) standard requirements.

Hemodynamic Modules M-NE(12)STPR, M-NE(12)TPR, M-NE(12)STR, M-ESTPR, M-ETPR, M-ESTR; M-P, M-PP, M-PT; M-NIBP
Letters in the module name stand for:
N= NIBP, E= ECG, 12 = up to 12 ECG leads, S= Pulse oximetry, T= Temperature, P= Invasive blood pressure, R= Impedance respiration

ECG
Filter modes:
  monitoring filter   0.5 to 30 Hz
  ST filter   0.05 to 30 Hz
  diagnostic filter   0.05 to 100 Hz
  - 12-lead ECG: 0.05 to 150 Hz
With 60 Hz power supply frequency:
  monitoring filter   0.5 to 40 Hz
  ST filter   0.05 to 40 Hz
Defibrillation protection: 5000V, 360J
Recovery time: 2 seconds
Heart rate:
  Measurement range: 30 to 250 bpm
  Measurement accuracy: ±5% or ±5 bpm

Display averaging time: 5 seconds
Display update time: 5 seconds
Pacemaker pulse detection:
  detection level: 2 to 500 mV
  pulse duration: 0.5 to 2 ms

Impedance respiration
Respiration range: 4 to 120 resp/min
Accuracy: ± 5% or ± 5 resp/min
NOTE: Impedance respiration measurement is intended for patients over three years old.

Temperature
Measurement range: 10 to 45°C (50 to 113°F)
Measurement accuracy: ±0.1°C (25 to 45.0°C)
                      ±0.2°C (10 to 24.9°C)
Probe type: Compatible with YSI 400 series

Invasive blood pressure
Measurement range: -40 to 320 mmHg
Measurement accuracy: ±5% or ±2 mmHg
Pulse rate:
  Measurement range: 30 to 250 bpm
  Accuracy: ±5% or ±5 bpm
Transducer sensitivity: 5µV/V/mmHg

NIBP

Measurement range: adult 25 to 260 mmHg,
child 25 to 195 mmHg,
infant 15 to 145 mmHg
Pulse rate range accepted: 30 to 250 bpm
Typical measuring time: adult 23 s, infant 20 s

NOTE: NIBP measurement is intended for patients weighing over 5 kg (11 lb.)

Pulse oximetry

Proportional scaling of plethysmographic waveform.
SpO_2
Measurement and display range: 40 to 100%
Calibration range: 50 to 100%
Calibrated against functional oxygen saturation.

Measurement accuracy (% SpO_2 ±1SD) [1]:
100 to 80%, ±2 digits;
80 to 50%, ±3 digits;
50 to 40%, unspecified
Display update time: 5 seconds
Display averaging time: adjustable; 10 sec,
20 sec or beat-to-beat
Display resolution: 1 digit = 1% of SpO_2
Pulse rate:
  Measurement and display range: 30 to 250 bpm
  Measurement accuracy: ±5% or ±5 bpm

Default alarm limits [2]
SpO_2 high Off, low 90%; PR high 160, low 40

NOTE: Pulse oximetry measurement is intended for patients weighing over 3 kg (6.6 lb).

Hemodynamic modules M-PRESTN, M-PRETN and M-RESTN

Letters in the module name stand for:
P= Invasive blood pressure; R= Impedance respiration; E= ECG; S= Pulse oximetry;
T= Temperature; N= NIBP
ECG [3]

Filter modes:
  monitoring filter   0.5 to 30 Hz
  ST filter   0.05 to 30Hz
  diagnostic filter   0.05 to 150 Hz
With 60 Hz power supply frequency:
  monitoring filter   0.5 to 40 Hz
  ST filter   0.05 to 40 Hz
Defibrillation protection: 5000 V, 360 J
Recovery time: 5 seconds
Heart rate:
  Measurement range: 30 to 250 bpm
  Measurement accuracy: ±5 % or ±5 bpm
  Display averaging time: 5 seconds
  Display update time: 5 seconds
Average heart rate response time and time range of response time:
  Response time 80 to 120 bpm: 7.9s (6.4 to 9.1 s)
  Response time 80 to 40bpm: 9.9s (8.3 to 11.4 s)
Maximum Tall T wave amplitude that does not disturb the heart rate calculation: 2.2 mV
The heart rate calculation operates with irregular rhythms of ANSI/AAMI EC13 3.1.2.1 as follows:
a): 75bpm
b): 61bpm
c): 115bpm
d): 97bpm

Pacemaker pulse detection:
  detection level: 2 to 700 mV
  pulse duration: 0.5 to 2 ms
The monitor is specified for both of the methods A and B required in EC13 section 4.1.4.2.
Offset voltage range: +800 mV
CMRR: >95 dB
Pacer pulse rejection of fast ECG signals:
  1.29 V/s according to the test defined in
  EC13 section 4.1.4.3.
Pacemaker detector may not operate correctly during the use of high-frequency (HF) surgical equipment. The disturbances of HF surgical equipment typically cause false positive pacer detection.

[1] Accuracy is based on deep hypoxia studies using Datex-Ohmeda FingerSat Sensors on volunteered subjects. Arterial blood samples have been analyzed by a Radiometer OSM Co-oximeter. 1 standard deviation = 68 % of all readings in the specified range in stable conditions.
[2] Limits are adjustable: OFF to 51% for SpO_2 high
50 to 100% for SpO_2 low
250 to 35 bpm for PR high
30 to 245 bpm for PR low

[3] The isolation barrier capacitance in the module has been minimized to reduce the hazard of burns in the event of a defect in the ESU return electrode connection.

Direct current for leads-off detection through an active patient electrode : 25 nA

Direct current for leads-off detection through a reference electrode: 225 nA

The normalized respiration sensing current between RA (R) and LL (F) or RA (R) and LA (L) or LA (L) and LL (L): 3.2 μA

Frequency of respiration sensing current: 31.25 kHz

Minimizing the effects of the line isolation monitor transients:

Crystal controlled oscillator used as the operating frequency source of the patient isolation power supply.

The average time and time range ( ) to alarm for tachycardia are as follows (ANSI/AAMI EC13 3.1.2.1.g):

Figure 4a halved amplitude: 6.5 s (6.1 to 7.1 s)
Figure 4a normal amplitude:5.3 s (4.9 to 5.7 s)
Figure 4a doubled amplitude:5.8 s (5.5 to 6.2 s)
Figure 4b halved amplitude: 5.0 s (4.5 to 6.0 s)
Figure 4b normal amplitude:5.4 s (4.6 to 6.0 s)
Figure 4b doubled amplitude:5.3 s (4.6 to 5.8 s)

The ECG measurement fulfils the requirements of the ANSI/AAMI EC11 3.2.7.2/4.2.7.2 by using the test methods a, b, c and e.

Direct cardiac application:

The display area reserved for the ECG measurement in the monitoring system screen may not be adequate for displaying the complete ECG amplitude when measuring ECG direct from the surface of the heart. Clipping of the signal can be reduced by adjusting the size of the signal on the display (for example, from the default 1.0 to 0.2) in the ECG menu.

Auxiliary output, ECG:

Bandwidth of auxiliary output: 0.5 to 30Hz
Gain: 1mV ECG signal is 1V at the
                     auxiliary output.
Propagation delay: < 15ms.

The pacemaker pulses have been replaced with 2ms fixed digital pulses at the ECG output for IABP or defibrillator equipment.

An auxiliary device that fulfils the requirements of the IEC 60601-1 standard can be connected to the auxiliary output. There are no other limitations, because the auxiliary output of the monitor is galvanically isolated from patient applied part of the ECG measurement.

Impedance respiration

Respiration range: 4 to 120 resp/min
Accuracy: ± 5% or ± 5 resp/min

The EMC immunity of the respiration measurement has been tested with 1 Vrms and 1 V/m. This level has been used for optimizing the immunity of the respiration measurement to damp the operating frequency of the electrosurgery equipment.

NOTE: Impedance respiration measurement is intended for patients over three years old.

Invasive blood pressure [4]

Measurement range:-40 to 320 mmHg
Measurement accuracy: ±5 % or ±2 mmHg

Pulse rate:

Measurement range: 30 to 250 bpm
Accuracy: ±5 % or ±5 bpm
Transducer sensitivity: 5 µV/V/mmHg

Temperature [4]

Measurement range: 10 to 45°C (50 to 113°F)
Measurement accuracy:
                ±0.1 °C (25 to 45.0°C)
                ±0.2°C (10 to 24.9°C)
Measurement accuracy with single-use sensors:
  ±0.2 °C (25 to 45 °C)
  ±0.3 °C (10 to 24.9 °C)
Probe type: Use only Datex-Ohmeda temperature probes or defibrillator-proof YSI 400 series probes.

Time constant of temperature probes:

Reusable skin temperature probe: 3 s
Reusable adult central temperature probe: 6 s
Reusable pediatric central temperature probe: 4 s
Disposable skin temperature probe: 3 to 6s
Disposable central temperature probe, 12F: 5 to 8 s
Disposable central temperature probe, 9F: 5 to 8 s
Esophageal stethoscope with temperature probe, 9F: 15 s
Esophageal stethoscope with temperature probe, 12F :   16 s
Esophageal stethoscope with temperature probe, 18F [5]:   23 s
Esophageal stethoscope with temperature probe, 24F [5]:   32 s

[4] The isolation barrier capacitance in the module has been minimized to reduce the hazard of burns in the event of a defect in the ESU return electrode connection.

[5] Response time of the probe exceeds 150 s.

NIBP

Measurement range: adult 25 to 260 mmHg
child 25 to 195 mmHg
infant 15 to 145 mmHg
Pulse rate range accepted: 20 to 250 bpm
Typical measuring time: adult 23 s, infant 20 s
Overall system accuracy:
   Meets or exceeds SP10-2002 AAMI standards

The ESU does not cause a burn hazard through the NIBP cuff, because there is no electrical connection between the cuff and the NIBP measuring electronics.

NOTE: NIBP measurement is intended for patients weighing over 5 kg (11 lb.)

SpO$_2$ [6]

Measurement and display range:
40 to 100 %
Calibration range: 70 to 100 %

Calibrated against functional oxygen saturation.
Measurement accuracy [7] (% SpO$_2$ ±1SD):
   100 to 70 %, ±2 digits,
   ±3 digits during clinical patient motion;
   69 to 40 %, unspecified
Display update time:
   5 seconds continuous, defined by the main
   software of the monitor
Display resolution: 1 digit (1% of SpO$_2$)

Wavelength of SpO$_2$ probe LEDs:

Infrared LED   900 nm
Red LED   660 nm

Maximum energy of SpO$_2$ probe LEDs:

Infrared LED   42 µJ/pulse
Red LED   62 µJ/pulse

Pulse rate:

Measurement and display range: 30 to 250 bpm
Measurement accuracy: ±5 % or ±5 bpm

Default alarm limits [8]:

SpO$_2$ high Off, low 90%
PR high 160, low 40

Cardiac Output Modules,
M-COP and M-COPSv

Pressure performance as above.

Cardiac output

Measurement range: 0.1 to 20 l/min
Repeatability: ±2 % or 0.02 l/min
Catheters: Edwards Lifesciences Corp.
                     compatible

SvO$_2$

Measurement range: 1 to 98%
Measurement accuracy:
                     ±2% SvO$_2$ equals 1 standard
                     deviation for range of
                     30% to 95% SvO$_2$ and
                     6.7 to 16.7 g/dl Hb when
                     using in vivo calibration.
Catheters: Edwards Lifesciences Corp.
                     SvO$_2$ catheter

REF

Measurement range: 1 to 85%
Repeatability: ±2% as measured by
                     electronically generated
                     pulsatile curves for range
                     10 to 60%. For other ranges
                     accuracy is unspecified.
Catheters: Edwards Lifesciences Corp.
                     REF catheter

[6] The isolation barrier capacitance in the module has been minimized to reduce the hazard of burns in the event of a defect in the ESU return electrode connection.

[7] Accuracy is based on deep hypoxia studies with volunteered subjects during motion and non-motion conditions over a wide range of arterial blood oxygen saturations as compared to arterial blood CO-Oximetry.

[8] Limits are adjustable: OFF to 51% for SpO$_2$ high
50 to 100% for SpO$_2$ low
250 to 35 bpm for PR high
30 to 245 bpm for PR low

Datex-Ohmeda Compatible Saturation Module, M-OSAT

Automatic scaling of plethysmographic waveform.

SpO_2
Measurement and display range: 20 to 100 %
Calibration range: 70 to 100 %
Accuracy 70 to 100 % (1 standard deviation):
                 ±2 digits
                 ±3 digits during clinical patient motion
Display resolution: 1 digit = 1% SpO_2
Display averaging time: 12 seconds
Display update time: 5 seconds

Calibrated against functional saturation.

Pulse rate
Measurement and display range: 30 to 250 bpm
Measurement accuracy:
                 ±2 % or ±2 bpm
                 (whichever is greater)
Resolution: 1 bpm
Display averaging time: 12 seconds
Display update time: 5 seconds

Default alarm limits [9)]
SpO_2 high Off, low 90%
PR high 160, low 40

Nellcor Compatible Saturation Module, M-NSAT

Automatic scaling of plethysmographic waveform.

SpO_2
Measurement and display range: 20 to 100 %
Calibration range: 70 to 100 %

Calibrated against functional oxygen saturation.

Measurement accuracy [10)]:
                 100 to 70 %: ±2 to ±3.5 digits
                 69 to 20 %:   unspecified
Display update time: 5 seconds
Display resolution: 1 digit = 1% SpO_2

Pulse rate
  Measurement and display range: 30 to 250 bpm
  Measurement accuracy: ±3 bpm

Default alarm limits [9)]
SpO_2 high Off, low 90%
PR high 160, low 40

Tonometry Module, M-TONO
Gastrointestinal PCO_2 ($PgCO_2$)

Measurement range: 0 to 30 kPa (0 to 228 mmHg)
Accuracy [11)]:

0 to 15 kPa	±(0.5 kPa + 5% of reading)
0 to 113 mmHg	±(4 mmHg + 5% of reading)
15 to 30 kPa	1.5 kPa ± 15% of reading
113 to 228 mmHg	12 mmHg ± 15% of reading

Measurement interval: 10 minutes

[9)] Limits are adjustable: OFF to 51% for SpO_2 high
                 50 to 100% for SpO_2 low
                 250 to 35 bpm for PR high
                 30 to 245 bpm for PR low
[10)] The accuracy value depends on the sensor used. Accuracy is based on Nellcor protocol #081400-N, Non-invasive Controlled Hypoxia Study Rev. B.
[11)] :Typical value.

Compact Airway Modules, M-CO, M-COV, M-CAiO, M-CAiOV, M-CAiOVX

Letters in the name stand for: C = CO_2 and N_2O, O = Patient O_2, A = Anesthetic agents, i = Agent identification, V = Patient Spirometry, X = Gas exchange

Sampling rate[12]   :   200 ml/min $\pm$20 ml/min

Sampling delay[12]   :   2.5 s typical with a 3-m sampling line

Total system response time:
        2.9 seconds typical with a 3-m sampling line, including sampling delay and rise time

Warm-up time[12]   :   2 to 5 min, 30 min for full spec.

Default alarm limits[13]
$EtCO_2$ high 8%, low 3%
FiEnf high 5.1%, low Off
$FiCO_2$ high 3%, low Off
EtEnf high 3.4 %, low Off
EtO_2 high Off, low 10%
FiIso high 3.4%, low Off
FiO_2 high Off, low 18%
EtIso high 2.3 %, low Off
FiN_2O high 82%
FiDes high 18%, low Off
FiHal high 2.2%, low Off
EtDes high 12 %, low Off
EtHal high 1.5 %, low Off
FiSev high 5.1%, low Off
EtSev high 3.4 %, low Off

Non-disturbing gases, maximum effect on readings CO_2 < 0.2 vol%, N_2O, O_2 < 2 vol%, anesth. agents: < 0.15 vol%:

Ethanol C_2H_5OH	<0.3%
Acetone	<0.1%
Methane CH_4	<0.2%
Nitrogen N_2	
Carbon monoxide CO	
Nitric oxide NO	<200 ppm
water vapor	

Effect of Helium: decreases CO_2 readings <0.6 vol% typically

Carbon dioxide (CO_2)
Measurement range: 0 to 15 vol % (0 to 15 kPa, 0 to 113 mmHg)
Measurement rise time: < 400 ms typical
Accuracy[12]   : $\leq$ 0.2 vol % + 2% of reading
Gas cross effects: < 0.2 vol% (O_2, N_2O, anesthetic agents)

Oxygen (O_2)
Measurement range: 0 to 100 vol%
Measurement rise time: < 400 ms typical
Accuracy[12]   : $\pm$ 2 vol %
Gas cross effects: < 1 vol% anesthetic agents, < 2 vol% N_2O

Nitrous oxide (N_2O)
Measurement range: 0 to 100 %
Measurement rise time: < 450 ms typical
Accuracy[12]   : $\pm$ 3 vol %
Gas cross effects: < 2 vol% anesthetic agents

Respiration rate (RR)
Measurement range: 4 to 60 breaths/min
Detection criteria: 1 % variation in CO_2

Anesthetic agent (AA)
Measurement rise time: < 400 ms typical
Gas cross effects: < 0.15 vol% N_2O
Halothane, Isoflurane, Enflurane
   Measurement range: 0 to 6 %
   Accuracy[12]   : $\pm$ 0.2 vol %
Sevoflurane
   Measurement range: 0 to 8 %
   Accuracy[12]   : $\pm$ 0.2 vol %
Desflurane
   Measurement range: 0 to 20 %
   Accuracy[12]   :   0 to 5 % $\pm$ 0.2 vol %, 5 to 10 % $\pm$ 0.5 vol % 10 to 20 % $\pm$ 1.0 vol %

Agent identification
Identification threshold[12]   : 0.15 vol %

[12]   Typical value.
[13]   Alarm limits and their adjustment range may vary depending on the mode used.

Patient Spirometry

Using D-lite (+) or Pedi-lite(+) flow sensor and gas sampler:

	D-lite(+)	Pedi-lite(+)
Tidal volume:		
Measurement range:	150 to 2000 ml	15 to 300 ml
Accuracy [14]:	$\pm6\%$ or 30 ml	$\pm6\%$ or 4 ml
Minute volume:		
Measurement range:	2 to 20 l/min	0.5 to 5 l/min
Accuracy [14]:	$\pm6\%$	$\pm6\%$
Airway pressure:		
Measurement range:	-20 to +100 cmH_2O	-20 to +100 cmH_2O
I:E:	1:4.5	2:1
Accuracy [14]:	$\pm1\ cmH_2O$	$\pm1\ cmH_2O$
Flow:		
Measurement range:	1.5 to 100 l/min	0.25 to 25 l/min
Compliance:		
Measurement range:	4 to 100 ml/cmH_2O	1 to 100 ml/cmH_2O
Airway resistance:		
Measurement range:	0 to 40 cm H_2O/l/s	0 to 40 cm H_2O/l/s

Sensor specifications:

	D-lite(+)	Pedi-lite(+)
Dead space:	9.5 ml	2.5 ml
Resistance:		
at 30 l/min	0.5 cmH_2O	
at 10 l/min		1.0 cmH_2O

Gas Exchange

VO_2 and VCO_2:

Measurement range: 20 to 1000 ml/min
Accuracy [14] (valid for respiration rates 4 to 35 breaths/min):

FiO2 <65%	$\pm10\%$ or 10 ml
65%$\leq$FiO2<85%	$\pm15\%$ or 15 ml

RQ, Respiratory Quotient (=VCO_2/VO_2)

Measurement range: 0.6 to 1.2

Detection through D-lite flow sensor and gas sampler (see the measurement ranges and sensor specifications above.)

Measurement not valid with O_2 +N_2O mixtures.

Specifications apply only without condensation at measurement point.

Single-width Airway Module, M-miniC

Sampling rate:	150 ±25 ml/min (sampling line 2 to 3 m, normal conditions)
Sampling delay:	2.1 s typical with a 3-m sampling line

Total system response time: 2.4 seconds typical with a 3-m sampling line, including sampling delay and rise time (typically 3.7 seconds with a 6-m sampling line)

Warm-up time:	1 min for operation with CO_2 30 min for full specification

Non-disturbing gases are those with a maximum effect on the CO_2 reading < 0.2 vol%. The effect is valid for specific concentrations shown in parentheses of the non-disturbing gas:

Ethanol C_2H_5OH (<0.3%)
Acetone (<0.1%)
Methane CH_4(<0.2%)
Nitrogen N_2
water vapor
Trichloromonofluoromethane (<1%)
Dichlorotetrafluoroethane (<1%)
Dichlorofluoromethane (<1%)

[14] Typical value

Single-width Airway Module, M-miniC (cont.)

Disturbing gases and their effect on the CO_2 reading at 5.0 vol-% CO_2 are shown below. Errors listed reflect the effect of specific concentrations (shown in parentheses) of an individual disturbing gas and should be combined when estimating the effect of gas mixtures:

Halothane (4%) increases < 0.3 vol%
Isoflurane (5%) increases < 0.4 vol%
Enflurane (5%) increases < 0.4 vol%
Desflurane (24%) increases < 1.2 vol%
Sevoflurane (6%) increases < 0.4 vol%
Helium (50%) decreases < 0.3 vol%
If O_2 compensation is not activated:
O_2 (40 to 95%) decreases < 0.3 vol%
If O_2 compensation is activated:
O_2 (40 to 95%) error < 0.15 vol%
If N_2O compensation is not activated:
N_2O (40%) increases < 0.4 vol%
N_2O (40 to 80%) increases < 0.8 vol%
If N_2O compensation is activated:
N_2O (40 to 80%) error < 0.3 vol%

Default alarm limits [15)]

$EtCO_2$ high 8%, low 3%
$FiCO_2$ high 3%, low Off

Carbon dioxide (CO_2)

Measurement range: 0 to 20 vol %
Resolution: 0.01%
Measurement rise time: < 300 ms with nominal flow
Accuracy:
0 to 15 vol% $\pm$ (0.2 vol % + 2% of reading)
15 to 20 vol% $\pm$ (0.7 vol % + 2% of reading)

Valid for respiration rate < 40 1/min at I:E ratio of 1:1. (Relative error is typically 10% for respiration rate 80 1/min at I:E ratio of 1:1.) The accuracy is specified in simulated ventilation. With higher respiration rates and with varying ventilation methods the specifications may not be met.

Respiration rate

Breath detection: 1% change in CO_2 level
Measurement range: 4 to 80 breaths/min
Accuracy:
±1/min in the range 4 to 20 l /min
±5% in the range 20 to 80 l/min
Resolution: 1/min

NOTE: M-miniC is intended for patients weighing over 5 kg (11 lb).

Neuromuscular Transmission Module, M-NMT

NMT

Stimulation modes:
Train of four, TOF
Double burst (3.3), DBS; Single twitch, ST
50 Hz tetanic & post tetanic count, PTC
Stimulus current range:
supramax 10 to 70mA
manual 10 to 70 mA with 5 mA steps
Stimulus current accuracy: 10% or ±3 mA

Regional block mode (plexus)

Stimulation mode: Single twitch
Stimulus current range:
                    0 to 5.0 mA with 0.1 mA steps
Stimulus current accuracy: 20% or ±0.3 mA

[15)]
Alarm limits and their adjustment range may vary depending on the mode used.

EEG Module, M-EEG

EEG

Sampling frequency: 100 Hz per channel
Range: ±400 µV
Frequency range: 0.5 to 30 Hz
Resolution: 60 nV
Input impedance: >8 MΩ at 10 Hz
Noise level: <0.5 µV rms from
0.5 Hz to 30 Hz
CMRR: >100 dB at 50 Hz
Parameters from power spectrum:
  SEF, MF, relative power in frequency bands
Burst suppression ratio (BSR)

AEP

Stimulation
Click (condensating): duration 100 µs
Frequency: 1.1 to 9.1 Hz (1 Hz steps
at 10 ms meas.)
Intensity: 10 to 90 dB nHL, 10 dB steps
Measurement
  Sampling frequency: 2400 Hz for MLAEP/
4800 for BAEP
  Frequency range: 0.5 to 1000 Hz
  Highpass filter: off/10/30/50/75/100/150 Hz
Single average:
Averaged responses: 100 to 2000 stimuli
Moving average:
Gross average: 100 to 2000 stimuli
Update interval: after every 100 stimuli (200,
when gross average is 2000)

EMG

Frequency range: 60 to 300 Hz
Parameter displayed: Amplitude (RMS)

BIS Module, M-BIS

EEG

Epoch duration: 2 seconds
Artifact rejection: automatic
EEG scales: 25 to 400 µV
EEG sweep speeds: 12.5/25/50 mm/sec
Bispectral index: 0 to 100
Signal quality index: 0 to 100
EMG: 30 to 80 dB (70 to 110 Hz)
Suppression Ratio: 0 to 100%
Update rate: 1 second for BIS index
Filters: ON (2 to 70 Hz with notch),
OFF (0.25 to 100 Hz)
Smoothing rate: 15 seconds (default)
or 30 seconds
Mode: sensor automatically selects
mode

DSC (Digital signal converter)

Analog to digital converter:
noise-shaped sigma-delta
Sampling rate: 16 384 samples/second
Resolution: 16 bits at 256
samples/second
Input impedance: 50 Mohms minimum
Noise: <0.3 µV RMS
(2.0 µV peak-to-peak)
0.25 Hz to 50 Hz

Common mode rejection (Isolation mode):
110 dB at 50/60 Hz to earth
ground
Bandwidth: 0.16 to 450 Hz

Entropy Module, M-ENTROPY

Entropy parameters:

Response Entropy (RE): range 0 to 100
State Entropy (SE): range 0 to 91
Burst Suppression Ratio (BSR):
range 0 to 100 %
Display resolution: 1 digit

Entropy EEG

Scales: ±25/50/100/250/400 µV
Sweep speed: 12.5/25/50 mm/s
Resolution: 60 nV

Amplifier and A/D conversion

Amplification: 10000
Sampling frequency: 1600 Hz
Frequency range: 0.5 to 118 Hz
Resolution: 60 nV

CAUTION: The entropy measurement is to be used as an adjunct to other physiological parameters in assessing the effects of certain anesthetic agents.

Abbreviations

/min	beats per minute, breaths per minute	ATPS	ambient temperature and pressure, saturated gas	C	chest
°C	Celsius degree	AV	atrioventricular	$C(a-v)O_2$	arteriovenous oxygen content difference
°F	Fahrenheit degree	aVF	left foot augmented lead	C.C.O.	continuous cardiac output
µg	microgram	avg	average	C.I.	cardiac index
A	arm (describing location)	aVL	left arm augmented lead	C.O.	cardiac output
A	alveolar	aVR	right arm augmented lead	cal.	calibration
a	arterial	aw	airway	Calc	calculated/derived value
a/AO_2	arterio-alveolar PO_2 ratio	Axil	axillatory temperature	Calcs	calculations
$AaDO_2$	alveolo-arterial oxygen difference			CAM	Compact Anesthesia Monitor
AA	anesthetic agent	BAEP	brainstem auditory evoked potential	CaO_2	arterial oxygen content
AAMI	Association for the Advancement of Medical Instrumentation	Bal	balance gas	Casc.	cascaded (ECG)
ABG	arterial blood gases	bar	1 atmosphere	cc	cubic centimeter
ABP	arterial pressure	Beta, Be	beta frequency band	CCCM	Compact Critical Care Monitor
ADU	Anesthesia Delivery Unit	Bigem.	bigeminy	CCM	Critical Care Monitor
AEP	auditory evoked potential	BIS	bispectral index	CcO_2	capillary oxygen content
AirW	airway temperature	Blad	bladder temperature	CCU	cardiac (coronary) care unit
Alpha, Al	alpha frequency band	Blood	blood temperature (C.O. measurement)	CEL	Celsius degree
AM	Anesthesia Monitor			CISPR	International Special Committee on Radio Interference
Amp	amplitude	Body	body temperature	cmH_2O	centimeter of water
Ant	anterior	BP	blood pressure	CMRR	common mode rejection ratio
APN	apnea	Brady	bradycardia	CO	carbon monoxide
Arrh.	arrhythmia	BSA	body surface area	CO_2	carbon dioxide
Art	arterial pressure	BSR	burst suppression ratio	COHb	carboxyhemoglobin
ASY	asystole	B-to-B	beat-to-beat	Compl	compliance
ATMP	atmospheric pressure	BTPS	body temperature and pressure, saturated gas	Cont.	continuous
ATPD	atmospheric/ambient temperature and pressure, dry gas			Contrl	controlled ventilation
		c	calculated/derived value		

Core	core temperature	ECG2	second ECG waveform	Exp	expiratory
Count	count of responses	ECG3	third ECG waveform	F	foot (describing location)
CPB	cardiopulmonary bypass	ED	emergency department	FAH	Fahrenheit degree
CPP	cerebral perfusion pressure	EDV	end-diastolic volume	FEMG	frontal electromyogram
CSA	compressed spectral array	EDVI	end-diastolic volume index	FFT	fast Fourier transform
CT	computer tomography	EE	energy expenditure (kcal/24h)	FI, Fi	fraction of inspired gas
CvO_2	(mixed) venous oxygen content	EEG	electroencephalogram	FiAA	fraction of inspired anesthetic agent
CVP	central venous pressure	EEG1	first EEG waveform		
		EEG2	second EEG waveform	Fib	fibrillation
d	day	EEG3	third EEG waveform	FiBal	fraction of inspired balance gas
dB	decibel	EEG4	fourth EEG waveform	$FiCO_2$	fraction of inspired carbon dioxide
DBS	double burst stimulation (NMT)	EEMG	evoked electromyogram	FiN_2	fraction of inspired N_2
DEL	delete	EEtot	total energy expenditure	FiN_2O	fraction of inspired nitrous oxide
Delta, De	delta frequency band	elect	electrode	FiO_2	fraction of inspired oxygen
depr.	depression	elev.	elevation	Flow	airway gas flow
Des	desflurane	EMC	electromagnetic compatibility	Freq.	frequent
Dia	diastolic pressure	EMG	electromyogram	ft	foot, feet
Diagn	diagnostic (ECG filter)	Enf	enflurane	FVloop	flow volume loop
DIFF	difference	Entr	entropy		
DIS	S/5 Device Interfacing Solution	EP	evoked potential	g	gram
DO_2	oxygen delivery	ESD	electrostatic discharge	Graph.	graphical
DO_2I	oxygen delivery index	Eso	esophageal temperature		
DSC	digital signal converter	ESV	end-systolic volume	h	hour
DSSS	Direct Sequence Spread Spectrum	ESVI	end-systolic volume index	H	hand (describing location)
		ET, Et	end-tidal concentration	Hal	halothane
dyn	dynamic	EtAA	end-tidal anesthetic agent	Hb	hemoglobin
		EtBal	end-tidal balance gas	Hbtot	total hemoglobin
e	estimated	$EtCO_2$	end-tidal carbon dioxide	HCO3-	bicarbonate
ECG	electrocardiogram	EtN_2O	end-tidal nitrous oxide	Hemo	hemodynamic
ECG1	first ECG waveform (top)	EtO_2	end-tidal oxygen	Hemo Calcs	hemodynamic calculations
ECG1/r	real-time ECG	ET-tube, ETT	endotracheal tube	HHb	reduced hemoglobin

HME	heat and moisture exchanger	K	kelvin	MAC	minimum alveolar concentration
HMEF	heat and moisture exchanger with filter	kcal	kilocalorie	Max	maximum
		kJ	kilojoule	mbar	millibar
hPa	hectopascal	kPa	kilopascal	mcg	microgram
HR	heart rate			Mean	mean blood pressure
HRdiff	heart rate difference	L	leg (describing location)	mEq	milliequivalent
ht	height	L	left (describing location)	MetHb	methemoglobin
HW	hardware	L, l	liter	MF	median frequency
Hz	hertz	l/min	liters/minute	mg	milligram
		Lab	laboratory	min	minute
IEC	International Electrotechnical Comission	LAN	local area network	Min	minimum
		LAP	left atrial pressure	ml	milliliter
I:E	inspiratory-expiratory ratio	Lat	lateral	MLAEP	middle-latency auditory evoked potential
IABP	intra-aortic balloon pump	lb	pound		
IC	inspiratory capacity	LCD	liquid crystal display	mmHg	millimeters of mercury
ICP	intracranial pressure	LCW	left cardiac work	mol	mole
ICU	intensive care unit	LED	light emitting diode	Monit	monitoring (ECG filter)
ID	identification	LVEDP	left ventricular end diastolic pressure	MRI	magnetic resonance imaging
Imped.	impedance; impedance respiration	LVEDV	left ventricular end diastolic volume	Mult.	multiple
				Multif. PVCs	
in	inch	LVSW	left ventricular stroke work		multifocal PVCs
Inf	inferior	LVSWI	left ventricular stroke work index	MV	minute volume
Infl.	inflation (limit)			MVexp	expired minute volume (l/min)
Insp	inspiratory			MVexp(BTPS)	expired minute volume in BTPS conditions
Inv.	invasive				
Inv. BP	invasive blood pressure			MVexp(STPD)	expired minute volume in STPD conditions
Irreg.	irregular				
Iso	isoflurane			MVinsp	inspired minute volume (l/min)
ISO	International Standards Organisation			MVspont	spontaneous minute volume
				Myo	myocardiac temperature
IVR	idioventricular rhythm				
J	joule				

N	neutral	
N_2	nitrogen	
N_2O	nitrous oxide	
Na	sodium	
Naso	nasopharyngeal temperature	
neo	neonate	
Net	network	
NIBP	non-invasive blood pressure	
NMT	neuromuscular transmission	
NO	nitric oxide	
NTPD	normal temperature and pressure, dry gas	
Num.	numerical	
O_2	oxygen	
O_2ER	oxygen extraction ratio	
O_2Hb	oxygenated hemoglobin	
OR	operation room	
Oxy	oxygenation	
Oxy Calcs	oxygenation calculations	
P	partial pressure	
P	pressure	
P(BTPS)	pressure in BTPS conditions	

$P(g-a)CO_2$	difference between gastrointestinal carbon dioxide and arterial blood carbon dioxide concentration	
$P(g-ET)CO_2$	difference between gastrointestinal carbon dioxide and end tidal carbon dioxide concentration	
P(STPD)	pressure in STPD conditions	
P1..6	invasive pressure channel identification on module	
PA	pulmonary artery	
Pa	Pascal (unit of pressure)	
Paced	paced beats	
$PaCO_2$	partial pressure of carbon dioxide in the arteries	
PAO_2	partial pressure of oxygen in the alveoli	
PaO_2	partial pressure of oxygen in the arteries	
PAOP	pulmonary artery occlusion pressure	
PA	pulmonary arterial pressure	

Paw	airway pressure	
Pbaro	barometric pressure	
PCWP	pulmonary capillary wedge pressure	
PE	polyethylene	
pedi	pediatric	
PEEP	positive end-expiratory pressure	
PEEPe	extrinsic positive end expiratory pressure	
PEEPe+i	total positive end expiratory pressure (ICU)	
PEEPe+PEEPi	total positive end expiratory pressure (ICU)	
PEEPi	intrinsic positive end expiratory pressure	
PEEPtot	total positive end expiratory pressure (anesthesia)	
$PgCO_2$	gastrointestinal carbon dioxide concentration	
pH	pH	
pHa	arterial pH	
pHi	intramucosal pH	
pHv	(mixed) venous pH	

PIC	patient interface cable	R	right (describing location)	Sev	sevoflurane
Pleth	plethysmographic pulse waveform	RAP	right atrial pressure	SI	stroke index
PM	pacemaker	Raw	airway resistance	Skin	skin temperature
PM non-capt.		RCW	right cardiac work	SN, S/N	serial number
	pacemaker non-capturing	RCWI	right cardiac work index	Spiro	patient spirometry
PM non-funct.		RE	Response Entropy	SpO_2	oxygen saturation
	pacemaker non-functioning	Rect	rectal temperature	Spont	spontaneous breathing
Pmax	maximum pressure	REF	right ventricular ejection fraction	SQI	signal quality index
Pmean	mean pressure	ref.	reference	SR	suppression ratio
Pmin	minimum pressure	Resp	respiration rate (total) (set)	SR	sinus rhythm
Ppeak	peak pressure	Resp Rate	respiration rate (total) (measured)	SSEP	somatosensory evoked potentials
Pplat	plateau (pause) pressure	RF	radio frequency	ST	single twitch (NMT)
PR	pulse rate	RMS	average (root mean square) power	ST	ST segment of electrocardiograph
Prev.	previous	Room	room temperature	stat	static
psi	pounds per square per inch	RQ	respiratory quotient	STAT	continuous NIBP cuff inflation for
pt	patient	RR	respiration rate (total) (measured)		five minutes
PTC	post tetanic count (NMT)	rtm	rhythm	STBY	standby
pts	patients	RV	residual volume	Stfilt	ST filter (ECG)
PVC	polyvinylchloride	RVEDV	right ventricular end-diastolic	STPD	standard temperature and
PVC	premature ventricular contraction		volume		pressure, dry gas
PVloop	pressure volume loop	RVESV	right ventricular end-systolic	Surf	surface temperature
PvO_2	partial pressure of oxygen in		volume	SV	stroke volume
	(mixed) venous blood	RVP	right ventricular pressure	SVC	supraventricular contraction
PVR	pulmonary vascular resistance	RVSW	right ventricular stroke work	SVI	stroke volume index
PVRI	pulmonary vascular resistance	RVSWI	right ventricular stroke work index	SvO_2	(mixed) venous oxygen saturation
	index			SVR	systemic vascular resistance
Px	standard pressure label, x being 1,	s	second	SVRI	systemic vascular resistance index
	2, 3, 4, 5, or 6	SA	sinoatrial	SW	software
		SaO_2	arterial oxygen saturation	Sys	systolic pressure
QRS	QRS complex	SD	standard deviation		
Qs/Qt	venous admixture	SE	State Entropy		
		SEF	spectral edge frequency		
		SEMG	spontaneous electromyogram		

t	time (min)		v	venous	WEP	Wired Equivalent Privacy
T	temperature		V	ventricular	WLAN	wireless local area network
T(BTPS)	temperature in BTPS conditions		V	volume	wt	weight
T1%	first stimulus as % of the reference value (NMT)		V/Q	ventilation/perfusion ratio	X	extreme
			V0.5	volume expired during the first 0.5 seconds	yr	year
T1..4	temperature channel identification on module		V1.0	volume expired during the first second	yrs	years
					* with Fick equation	
Tab.	tabular		VA	alveolar ventilation		
Tachy	tachycardia		VC	vital capacity		
Tbl, Tblood	blood temperature		VCO_2	carbon dioxide production		
Tcorr	temperature correction		Vd	dead space		
Temp	temperature		Vd/Vt	dead space ventilation		
Theta, Th	theta frequency band		Vent Calcs	ventilation calculations		
Tinj	injectate temperature		VFib	ventricular fibrillation		
TOF	train of four (NMT)		VO_2	oxygen consumption		
TOF%	ratio of the 4th to the 1st response (NMT)		VO_2Calc	calculated oxygen consumption*		
Trigem.	trigeminy		VO_2CalcI	calculated oxygen consumption index*		
TV	tidal volume					
TVexp	expired tidal volume (ml)		VO_2I	oxygen consumption index		
TVinsp	inspired tidal volume (ml)		Vol	volume		
Tx	temperature label, x being 1, 2, 3, or 4 or one of the other label choices		V Run	ventricular run		
			V Tachy	ventricular tachycardia		
Tymp	tympanic temperature					

Supplies and accessories

The accessories below are approved and specified for the Datex-Ohmeda AS/3 Compact Anesthesia Monitor. For more information, see the corresponding Datex-Ohmeda catalogs. Patient accessories designed for use with this device are made of biocompatible materials conforming to requirements of the standard EN 30993 Biological Evaluation of Medical Devices and therefore do not contain toxic ingredients or primary skin irritants. The conformity is based either on laboratory testing or material knowledge and the long history of the materials used. Please note that some products are not available worldwide. You can check the availability with your local Datex-Ohmeda office or distributor. Please, also refer to our catalog: http://supplies.datex-ohmeda.com/DO

ECG

Trunk cables, IEC color coding

545300	3 leadwire trunk cable, 3 m/10 ft
545301	5 leadwire trunk cable, 3 m/10 ft
545200	Multiparameter cable (3- and 5-wire sets)
545323	10 leadwire trunk cable, 3 m/10 ft

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003600	3 leadwire ECG trunk cable, 3 m/10 ft
8003602	5/10 leadwire ECG trunk cable, 3 m/10 ft
8003606	3 leadwire ECG DIN trunk cable, 3 m/10 ft
8003610	5 leadwire ECG DIN trunk cable, 3 m/10 ft

Leadwire sets, IEC color coding

545315	3 leadwire set, clip, 0.75 m/2.5 ft
545316	5 leadwire set, clip, 1.25 m/4.1 ft
545325	C2-C6 leadwire set, clip, 1.25 m/4.1 ft
8001960	3 leadwire set, clip, 1.5 m/4.9 ft
8001961	5 leadwire set, clip, 1.5 m/4.9 ft

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003610	3 leadwire set, clip, 0.75 m/2.5 ft
8003613	3 leadwire set, clip, 1.5 m/4.9 ft
8003620	5 leadwire set, clip, 0.75 m/2.5 ft or 1.25 m/4.1 ft
8003623	10 leadwire set, clip, 1.5 m/4.9 ft
8003630	10 leadwire set, clip, 0.75 m/2.5 ft or 1.25 m/4.1 ft

One-piece ECG cables, IEC

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003634	3 leadwire one-piece ECG cable, clip, 3.5 m/11.5 ft
8003636	5 leadwire one-piece ECG cable, clip, 3.5 m/11.5 ft

Telemetry ECG leadwires, IEC

8003100	5 leadwire, snap
8003102	10 leadwire, snap

Trunk cables, AAMI color coding

545302	3 leadwire trunk cable, 3 m/10 ft
545303	5 leadwire trunk cable, 3 m/10 ft
545201	Multiparameter cable (3 and 5 leadwire sets)
545324	10 leadwire trunk cable, 3 m/10 ft

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003601	3 leadwire ECG trunk cable, 3 m/10 ft
8003603	5/10 leadwire ECG trunk cable, 3 m/10 ft
8003606	3 leadwire ECG DIN trunk cable, 3 m/10 ft
8003610	5 leadwire ECG DIN trunk cable, 3 m/10 ft

Leadwire sets, AAMI color coding

545317	3 leadwire set, clip, 0.75 m/2.5 ft
545318	5 leadwire set, clip, 1.25 m/4.1 ft
545327	3 leadwire set, snap, 0.75 m/2.5 ft
545328	5 leadwire set, snap, 1.25 m/4.1 ft
545326	V2-V6 leadwire set, clip, 1.25 m/4.1 ft
8001958	3 leadwire set, clip, 1.5 m/4.9 ft
8001959	5 leadwire set, clip, 1.5 m/4.9 ft

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003611	3 leadwire set, clip, 0.75 m/2.5 ft
8003612	3 leadwire set, snap, 0.75 m/2.5 ft
8003614	3 leadwire set, clip, 1.5 m/4.9 ft
8003621	5 leadwire set, clip, 0.75 m/2.5 ft or 1.25 m/4.1 ft
8003622	5 leadwire set, snap, 0.75 m/2.5 ft or 1.25 m/4.1 ft
8003624	5 leadwire set, clip, 1.5 m/4.9 ft
8003631	10 leadwire set, clip, 0.75 m/2.5 ft or 1.25 m/4.1 ft

One-piece ECG cables, AAMI

FOR M-PRESTN, M-PRETN and M-RESTN only:

8003635	3 leadwire one-piece ECG cable, clip, 3.5 m/11.5 ft
8003637	5 leadwire one-piece ECG cable, clip, 3.5 m/11.5 ft

Telemetry ECG leadwires, AAMI

8003101	5 leadwire, snap
8003103	10 leadwire, snap

Electrodes

572683	Solid gel, Ag/AgCl, pkg of 50 pcs
572684	For infants, safety pin 60 cm, 15 pcs

Pulse oximetry
OxyTip+ Reusable Finger Sensors
OXY-F4-N	Integrated finger sensor, 4 m/13 ft
OXY-F-UN*	Interconnect finger sensor, 1 m/3.3 ft
OXY-F-DB	Interconnect sensor, 2 m/7 ft

OxyTip+ Adhesive Sensors
OXY-AP-25*	Adult and pediatric, pkg of 25 pcs
OXY-AP-10*	Adult and pediatric, pkg of 10 pcs
OXY-AF-10*	AllFit, pkg of 10 pcs
OXY-DSP*	Adhesive sensor sample kit

*Requires the use of an OxyTip+ Interconnect Cable (OXY-OL3)

OxyTip+ Cables
OXY-OL3	Interconnect cable, 3 m/10 ft
OXY-SL3	Interconnect cable, 3 m/10 ft
OXY-SLA	Adapter cable, 0.5 m/1.5 ft
OXY-SLC	Adapter cable, 2 m/7 ft
OXY-C1	Interconnect cable, 1.5 m/4.9 ft
OXY-C3	Interconnect cable, 3 m/10 ft
OXY-C7	Interconnect cable, 7 m/23 ft

Temperature
Reusable probes
16560	Skin temp probe, 3.5 m/11.5 ft
165602	Skin temp probe, 1.5 m/4.9ft
16561	Central temp probe, adult, 2.8 m/9 ft
165622	Central temp probe, adult, 1.5 m/4.9 ft
165611	Central temp probe, pedi, 2.8 m/9 ft
165612	Central temp probe, pedi, 1.5 m/4.9 ft

Disposable probes
8001642	Skin temperature probe
8001643	Central temperature probe 12F
8001644	Central temperature probe 9F

Extension cables for disposable probes
165640	Extension cable 1.3 m/4.3 ft, used with multiparameter cables
165641	Extension cable 2.8 m/9.2 ft, used with Datex-Ohmeda monitor or module

Multiparameter cables (ECG, SpO2, Temp)
545200	Multiparameter cable, IEC
545201	Multiparameter cable, AAMI

Esophageal stethoscopes
8002910	Esophageal stethoscope with temperature probe, 9F
8002911	Esophageal stethoscope with temperature probe, 12F
8002908	Esophageal stethoscope with temperature probe, 18F
8002909	Esophageal stethoscope with temperature probe, 24F

Invasive blood pressure
Reusable transducers and cables
78000	SensoNor 844, 3 m/10 ft
165700	Spectramed P10EZ-1, 0.45 m/1.5 ft
54586	Adapter cable for DTX disposable pressure transducers, 3.8 m/12 ft
875408	Cable for HP 1290C-type pressure transducers, 0.3 m/1 ft

Disposable flushing kits and domes
16577	Flushing kit for SensoNor 840, sterile, pkg of 10 kits
16578	Dome for SensoNor 840, sterile, pkg of 50 pcs
78001	Flushing kit for SensoNor 844
78002	Dome for SensoNor 844

NIBP
Reusable color coded latex-free cuffs
572429	Large adult cuff, red
572428	Standard adult cuff, blue
572427	Small adult cuff, gray
572426	Child cuff, green
572425	Infant cuff, tan
8002248	Long large adult cuff, red
8001997	Thigh NIBP cuff (for M-PRESTN, M-PRETN and M-RESTN only)

Disposable cuffs
8001991	Long large adult cuff
8001992	Large adult cuff
8002562	Long standard adult cuff
8001993	Standard adult cuff
8001994	Small adult cuff
8001995	Child cuff
572403	Infant cuff #3, pkg of 10 pcs
572404	Infant cuff #4, pkg of 10 pcs
572405	Infant cuff #5, pkg of 10 pcs

Cuff hoses
877235	Adult hose, black, 3 m/10 ft
895732	Adult hose, black, 1.8 m/6 ft
879739	Adult hose, black, 6 m/20 ft
877514	Infant hose, white, 3 m/10 ft
890639	Infant hose, white, 6 m/20 ft

Cardiac output
16573	Thermodil. cath. Edwards Lifesciences Corp. 93A-131-7F
16590	Catheter connecting cable
16591	Injectate bath temp probe
16592	Flow-through injectate temp probe
16593	Spectramed CO-set temp probe
16574	CO-set for room temp inject., 10 pcs

Patient Spirometry
Reusable sensors
733910	D-lite sensor
73393	Pedi-lite sensor

Single use sensors
733950	D-lite sensor, pkg of 50 pcs
896952	D-lite+ sensor
8002718	Pedi-lite+ sensor, pkg of 50 pcs

Disposable spirometry tubes
890031	2 m/7 ft, yellow, pkg of 5 pcs
884101	3 m/10 ft, yellow, pkg of 5 pcs

Disposable spirometry accessory kit
889560	pkg of 50 kits
8002718	pediatric spirometry kit, pkg of 50 pcs

Airway gases
Anesthesia gas sampling lines
73318   Disposable, 2 m/7 ft, pkg of 10 pcs
73319   Disposable, 3 m/10 ft, pkg of 10 pcs

Disposable airway adapters
73385   Straight T-adapter, pkg of 10 pcs
73386   Elbow adapter, pkg of 10 pcs
The following adapters are for low dead space pediatric endotracheal tubes:
877583   ID 2.5 mm, pkg of 5 pcs
877584   ID 3.0 mm, pkg of 5 pcs
877585   ID 3.5 mm, pkg of 5 pcs
877586   ID 4.0 mm, pkg of 5 pcs

Reusable airway adapters
84995   Steel adapter, 15F-15M

D-fend water traps
876446   D-fend, black, pkg of 10 pcs
881319   D-fend+, green, pkg of 10 pcs
8002174 Mini D-fend, pkg of 10 pcs, for M-miniC
876107   Container, pkg of 5 pcs

Filtration
Machine side filter
557021200 Uni-Filter, pkg of 45 pcs
Patient machine side filter
557022500 Uni-Filter/S, pkg of 60 pcs

Humidification/Filtration
Heat and moisture exchangers with integrated bacterial/viral filters (HMEF)
557070100 HMEF 1000, pkg of 50 pcs
557070500 HMEF 500, pkg of 75 pcs

Dust filters
886236   For all M-Cxx modules

Calibration gases
755534   Regulator for calibration gases 755580, 755581, 755583
755580   Quick Cal calibration gas for M-miniC, applicable for M-TONO
755581   Quick Cal calibration gas for M-CO, M-COV, M-COVX
755583   Quick Cal calibration gas for M-CAiO, M-CAiOV, M-CAiOVX

Tonometry
Catheters
TONO-8F   pkg of 5 pcs
TONO-14F pkg of 5 pcs
TONO-16F pkg of 5 pcs
TONO-18F pkg of 5 pcs
Calibration gas for tonometry
755580   Quick Cal calibration gas (balance air)
755534   Regulator
733251   Calibration gas sampling line

NMT

M-NMT sensors

888418	MechanoSensor, 0.3 m/1 ft
888416	ElectroSensor, 0.3 m/1 ft
888419	Pediatric MechanoSensor, 0.3 m/1 ft

M-NMT sensor cables

888414	3.3 m/11 ft
888415	1.5 m/5 ft

Miscellaneous for Datex-Ohmeda M-NMT

57268	NMT electrodes, solid gel, Ag/AgCl, pkg of 30 pcs
888417	Regional Block Adapter, cable 0.5 m/1.5 ft

EEG and AEP

Lead sets

898050	Basic EEG lead set, clip
898051	General EEG lead set, clip
898052	AEP lead set, clip

Electrodes

572685	EEG stick-on electrodes, 15 bags containing 5 electrodes each
572686	EEG cup electrodes, pkg of 500 pcs
75349	Conductive paste

BIS

900507	Converter set: DSC and PIC Plus cable
545780	PIC Plus cable
545781	BIS Sensor Plus
545782	BIS Sensor Pediatric
545783	BIS Sensor Quatro

Entropy

8002858	Entropy sensor (pkg of 25 pcs)
8002964	Entropy sensor cable, 3.5 m/11.5 ft

Interface cables

881167	UPI-PC serial, 3 m/ 10 ft
889352	M-PT Universal ECG/P3 output, 6m/20 ft
884988	M-PT Kontron IABP cable, 6 m/20 ft
884989	M-PT Datascope IABP cable 6 m/20 f
892385	INT Baxter Vigilance cable, 2 m/7 ft

Mounting elements

572238	Portable monitor wall mount
887053	CM universal mounting plate
886172	CM bed mount
572235	Portable monitor roll stand
800065	Remote Controller holder

Other monitor supplies

74205	Thermal recorder paper, 20 rolls
85969	Cleaning fluid
883387	Dust filter for Compact Monitor
886236	Dust filter for Compact Airway Modules

Fuses

51119	250 V, T3.15 A, 5*20 mm
511382	125 V,5 A slow,5*20 mm (UL/CSA)