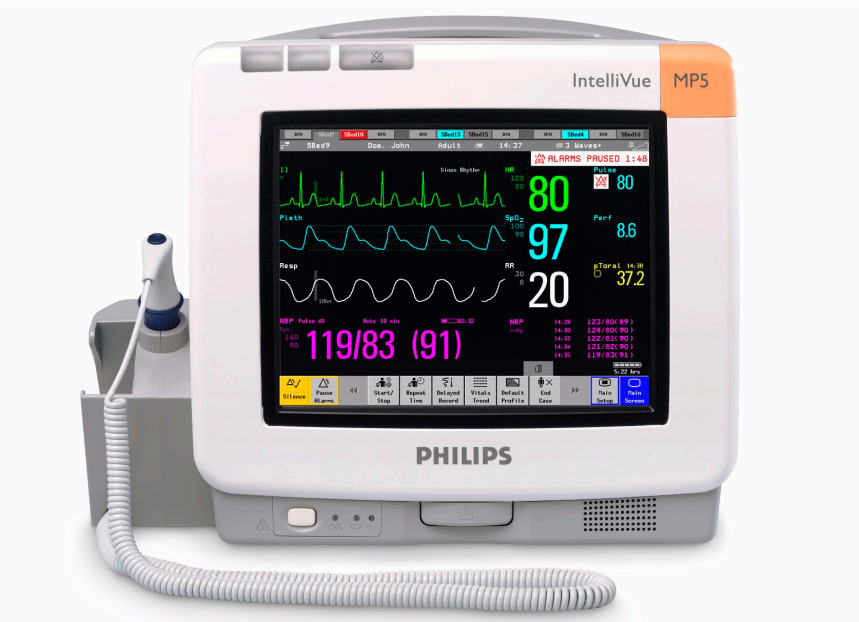


IntelliVue MP5 Patient Monitor

Philips M8105A **Technical Data Sheet**

The MP5 portable patient monitor is compact in size, ergonomic, and modular in design. It shares a common user interface and technological platform with the Philips IntelliVue MP20-MP90 patient monitors.

The MP5 can be connected to one of the MP20 to MP90 monitors and used like a Multi-Measurement Module (MMS), providing monitoring continuity in transport situations.

The monitor is highly customizable. Dedicated configurations are available for the anesthesia, critical and cardiac, and neonatal care environments.

The IntelliVue series offers a complete monitoring solution that is flexible and modular, designed to suit a broad spectrum of monitoring needs.

Measurement Features

- Compact, rugged, lightweight monitor with built in measurements
- ECG monitoring using any combination of three to 10 electrodes.
- 12-lead ECG monitoring with five electrodes using the EASI method or with 10 electrodes using the conventional method.
- Multi-lead arrhythmia and ST segment analysis at the bedside on all available leads.
- Respironics Mainstream or Sidestream CO_2
- FAST SpO_2 for accurate performance even with low perfusion.
- Invasive Pressure and Temperature measurement
- Choice of either auscultatory or intra-arterial measurements as a measurement reference for Non-Invasive Blood Pressure

PHILIPS

- Predictive temperature measurement, providing temperature readings within 6 to 15 seconds.
- Built in Recorder
- Telemetry devices can be directly connected to monitor telemetry data (ECG/SpO_2) on the MP5 screen (Telemetry as a parameter (TAAP)).
- The MP5 with IntelliVue Instrument Telemetry can be declared as a telemetry device at the Information Center and paired with a monitor.
- The monitor can operate using battery power for up to four hours with basic monitoring configuration and up to three hours with extended monitoring configuration, to let you safely and easily monitor patients during in-hospital transfer. See "Battery Specifications" on page 7.

Usability Features

- Touchscreen as input device.
- Intuitive user interface.
- Simple menu hierarchy gives fast access to all basic monitoring tasks.
- Patient data management with tabular and graphic trends.
- Settings "Profiles" for rapid case turnover.
- Patented automatic alarm limits help clinicians provide care more efficiently.
- Neonatal Event Review keeps a record of rapidly changing condition of neonatal patients.
- Bed-to-bed overview provides clinicians with an overview of all the patient beds in their care.
- 8.4" TFT flat panel display with SVGA (800 x 600) resolution, wide viewing angle, large numerics, permanently visible alarm limits, and up to four real-time waves.
- Capable of functioning in a wireless infrastructure (WLAN or IIT)
- Timer application allows you to set timers to notify you when a specific time period has expired.

Intended Use

The monitor is intended to be used for monitoring and recording of, and to generate alarms for, multiple physiological parameters of adults, pediatrics, and neonates in a hospital environment and during patient transport inside and outside of hospitals. The monitor is intended for use by health care professionals.

The monitor is only for use on one patient at a time. It is not intended for home use. Not a therapeutic device.

Rx only: U.S. Federal Law restricts this device to sale by or on the order of a physician.

ST segment monitoring is intended for use with adult patients only and is not clinically validated for use with neonatal and pediatric patients.

The Predictive Temperature unit is intended for use with adult and pediatric patients in a hospital environment.

The ECG measurement is intended to be used for diagnostic recording of rhythm and detailed morphology of complex cardiac complexes (according to AAMI EC 11).

The derived measurement Pulse Pressure Variation (PPV) is intended for use with sedated patients receiving controlled mechanical ventilation and mainly free from cardiac arrhythmia. The PPV measurement has been validated only for adult patients.

Hospital Environment:

The monitor is suitable for use in all medically used rooms which fulfill the requirements regarding electrical installation according to IEC60364-7-710 "Requirements for special installations or locations - Medical locations", or corresponding local regulations.

EMC Environment:

The following measurements and system interfaces are, in addition, suitable for use in establishments directly connected to the public low-voltage supply network that supplies buildings used for domestic purposes:

- ECG/Respiration, NBP, SpO_2, Pressure, Temperature, CO_2 (only Mainstream Sensor M2501A)
- LAN, Video Out, Battery, Nurse Call, RS232, and recorder interfaces.

The monitor is available as a standalone or networked solution

Upgradability

The MP5 monitor allows new capabilities to be added in the future as your monitoring requirements evolve. This upgradability gives the security of knowing that the monitors can be enhanced and updated as practices and technologies advance, and it protects long-term investments.

Main Components

Monitor

The monitor has a color 8.4" LCD TFT display with a wide viewing angle, providing high resolution waveform and data presentation.

The display, processing unit, measurements and power supply are integrated into one device.

User Interface

The user interface is designed for fast and intuitive operation. The color graphical user interface ensures that clinicians quickly feel at ease using the monitor.

Configurable SmartKeys with intuitive icons allow monitoring tasks to be performed quickly and easily, directly on the monitor screen.

Waves and numerics are color-coded.

The monitor displays up to four measurement waves simultaneously. For 12-lead ECG monitoring it can display 12 real-time ECG waves, with a rhythm strip and all ST values.

The MP5 monitor is supplied with a resistive touchscreen.

Simulated Keyboard

If alpha or numeric data entry is required, for example to enter patient demographics, an on-screen keyboard will automatically appear on the screen.

Mounting

The mounting options available enable flexible, space saving placement of the monitors for an ergonomic work space. The monitor is shipped with a low cost mounting plate if not specified otherwise.

Application Features

Critical and Cardiac Care Features

- The monitor performs multi-lead ***arrhythmia detection*** analysis on the patient's ECG waveform at the bedside. It analyzes for ventricular arrhythmias, calculates heart rate, and generates alarms, including asystole, bradycardia, and ventricular fibrillation.
- Up to 12 leads of ***ST segment analysis*** can be performed on adult patients at the bedside, measuring ST segment elevation and depression and generating alarms and events. The user can trend ST changes, set high and low alarm limits, and set both ST and isoelectric measurement points. Using ST Snippets, one-second wave segments can be compared with a baseline segment for each measured ST lead.
- ***QT/QTc interval monitoring*** provides the measured QT interval, the calculated heart-rate corrected QTc value and a ΔQTc value, which tracks variation in the QT interval in relation to a baseline value.
- optional ***ST Map*** application shows ST changes over time in two multi-axis spider diagrams.
- optional ***12-lead ECG*** data can be measured, using either the EASI placement method with five standard electrodes or conventional electrode placement with 10 electrodes.[1]
- 12 realtime ECG waveforms can be displayed simultaneously.
- ***FAST-SpO$_2$***, using Fourier Artifact Suppression Technology, performs accurately even in cases with low perfusion.
- Choice of sidestream or mainstream ***CO$_2$ monitoring*** for high quality measurements with intubated and non-intubated patients.
- ***Telemetry devices*** (TRx4841A/TRx4851A TRx/TRx+ IntelliVue Transceiver) can be connected via a cable to the MP5 to monitor telemetry data (ECG/SpO2) on the MP5 screen.
- The optional ***Drug Calculator*** helps you to manage intravenous (IV) drug infusions by calculating drug dose, rate, amount, volume, concentration, and standardized rate.

Anesthesia Features

- The ***IntelliVue G1*** and ***G5***[2] anesthetic gas modules measure up to 5 respiratory gases and one or two agents and produce waves and numerics for display on the MP5 monitor.
- ***Screens*** and ***Profiles*** provide flexible viewing of patient information during different procedures or phases of an anesthesia case.

Neonatal Monitoring Features

- The ***OxyCRG*** screen provides a simultaneous presentation of up to three trends:
  – beat-to-beat heart rate (btbHR)
  – an oxygenation measurement trend
  – compressed respiration wave.
  This customized display gives clinicians a convenient overview of the neonatal patient's most important vital signs, helping them to identify significant events.
  Continuous OxyCRG recordings can be made on the built-in recorder, and reports can be printed on locally or centrally-connected printers.
- Optional ***Neonatal Event Review*** (NER) is optimized for monitoring neonatal patients.
  For each event, an episode of four minutes of data sampled four times a second is stored, to help you keep a record of the rapidly-changing condition of neonatal patients. Combi-events correlate apnea events with bradycardia and/or desaturations.

Ease of Use

- ***Screen layouts*** are easily adjustable, allowing flexible display of measurement information.
- Temperature, height, and weight can be configured either in metric or imperial units. Pressure measurements can be displayed in kPa or mmHg. Gases can be displayed in kPa, mmHg.

Trends

- The ***trend database*** stores patient data from up to 16 measurement numerics. The measurement information can be sampled every 12 seconds, one minute, or five minutes, and stored for a period ranging from four to 48 hours.

ProtocolWatch

- ProtocolWatch allows clinicians to run clinical protocols that can monitor developments in the patient's condition. The SSC Sepsis

1. EASI-derived 12-lead ECGs and their measurements are approximations to conventional 12-lead ECGs. As the 12-lead ECG derived with EASI is not exactly identical to the 12-lead conventional ECG obtained from an electrocardiograph, it should not be used for diagnostic purposes.

2. IntelliVue G5 in combination with MP5 is only available in the USA

Protocol runs on the ProtocolWatch application and is used in screening for severe sepsis.

Transport Features

- The monitor's portable design means it can be used for in-hospital transport: a basic monitor weighs 4 kg.
- The monitors can operate using battery power for up to four hours, to let you safely and easily monitor patients during procedures or in-hospital transfer.
- The monitor's network capability means that it is ready for use as an integrated part of the hospital system.
- Specially-designed mounting solutions let you quickly disconnect the monitor for transport and reconnect to the mount after transport.
- The Universal Admit, Discharge and Transfer (ADT) feature means that all ADT information is shared between the networked monitor and the Information Center. Information need only be entered once.

Patient Data Documentation

- An extensive range of ***Patient Reports*** can be printed:
  – Event Review and Episode Reports
  – OxyCRG Reports
  – 12-lead ECG Reports
  – Alarm Limit Reports
  – Vital Signs
  – Graphic Trends
  – Drug Calculator Reports
  – Realtime Wave Reports

  Report templates can be defined in advance, enabling print-outs tailored to each hospital's specific requirements to be started quickly. Reports can be printed on locally or centrally- connected printers, and they can be initiated manually or automatically at user-defined intervals.

Alarms

The alarm system can be configured to present either the traditional HP/Agilent/Philips alarm sounds or sounds compliant with the draft ISO/IEC 9703-2 Standard.

Alarm limits are permanently visible on the main screen. The Alarm Limits page provides a graphic depiction of alarm limits in relation to the currently monitored measurement values and lets you adjust alarm limits. It also lets you preview wide and narrow automatic alarm limits before you apply them.

When an alarm limit is exceeded, it is signalled by the monitor in the following ways:

- an alarm tone sounds, graded according to severity
- an alarm message is shown on the screen, color-coded according to severity
- the numeric of the alarming measurement flashes on the screen
- alarm lamps flash for red and yellow alarms and are illuminated for technical INOPs

If the monitor is connected via a network to a central monitoring station, alarming is simultaneous at the monitor and at the Information Center.

The nurse call relay has active closed contacts and a user-definable delay time.

Alarms are graded and prioritized according to severity:

- ***Red Alarms****** identify a potentially life threatening situation for a patient .
- ***Yellow Alarms**** indicate conditions violating preset vital signs limits.
- ***Technical Alarms (INOPS)*** are triggered by signal quality problems, equipment malfunction or equipment disconnect.

  The Silence/Pause Alarms function (equivalent to Silence/Suspend with previous monitor generations) allows the user to switch off alarm tones with one touch.

  All alarms can be paused for a period of one, two, three, five, or 10 minutes or turned off indefinitely.

  Alarm strip recordings are available on the optional built-in recorder or on a centrally-connected recorder.

  Patented automatic alarm limits automatically adapt the alarm limits to the patient's currently measured vital signs within a safe margin defined individually for each patient.

  Visual and/or audible latching and non-latching alarm handling is available.

Profiles

Profiles are predefined configuration settings for Screens, measurement settings, and monitor settings. Each Profile can be designed for a specific application area and patient category, for example OR adult, or ICU neonatal. Profiles enable a quick reaction to patient and care location changes: activating a Profile with a particular patient category (Adult, Pediatric or Neonatal) automatically applies suitable alarm and safety limits and saves time usually spent carrying out a complete set-up procedure.

Profiles can be created directly on the monitor or remotely on a personal computer and transferred to the monitor using the IntelliVue Support Tool. A selection of Profiles for common monitoring situations is provided with the monitor. These profiles can be changed, added to, renamed, or deleted.

Other Bed Overview Capability

The alarm status of beds in the same Care Group on the hospital network can be permanently displayed on the screen of each monitor in the Care Group. The user can also view measurement data from all other monitors connected to the hospital network.

Service Features

- The Support Tool helps technical personnel to
  - carry out configuration, upgrades and troubleshooting via the network, or on an individual monitor
  - share configuration settings between monitors
  - back up the monitor settings.
- A password-protected Service Mode ensures that only trained staff can access service tests and tasks.
- The Configuration Mode is password-protected and allows trained users to customize the monitor configuration.

Device Connections

The monitor can be connected to:

- an Information Center (for example M3150B)
- a PC
- IntelliVue G1/G5 gas module
- TRx4841A/TRx4851A TRx/TRx+ IntelliVue Transceiver

Network Interface

The network interface provides the system with networking capability via a wired or wireless network connection.

Wireless Network

The monitor can function within a wireless infrastructure based on an IEEE 802.11 a/b/g network in the 2.4 GHz / 5 GHz bands (ISM). Additionally, the monitor can function within a telemetry infrastructure compatible with the Philips Cellular Telemetry System (CTS) in the WMTS and ISM bands. Additional components are required to complete the system. Please refer to the M3185A IntelliVue Clinical Network Technical Data Sheet for further information.

MIB/RS-232 Interface

The monitor has an optional serial MIB/RS-232 interface board with a fully-isolated port. The port can be configured to be used for:

- input for connection to a touchscreen
- data export using a computer interface, to an automated anesthesia record keeper or a personal computer (not available in all geographies)
- connection to an IntelliVue G1/G5 anesthetic gas module

Companion Mode Interface

The Companion Mode interface is used to connect the MP5 to a host monitor of the IntelliVue MP20-90 family.

Monitor Specifications

Safety Specifications

The monitor complies with the Medical Device Directive 93/42/EEC (CE_{0366}) and with IEC 60601-1:1988 + A1:1991 + A2:1995; EN60601-1:1990 + A1:1993 + A2:1995; UL 60601-1:2003; CAN/CSA C22.2#601.1-M90; JIS T 0601-1:1999; IEC 60601-1-1:2000; EN 60601-1-1:2001.

All applied parts are Type CF unless otherwise specified. They are protected against damage from defibrillation and electrosurgery.

The possibility of hazards arising from software errors was minimized in compliance with ISO 14971:2000, EN60601-1-4:1996 + A1:1999 and IEC 60601-1-4:1996 + A1:1999.

The monitor complies with the EMC standards

IEC 60601-1-2:2001; EN 60601-1-2:2001

This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme a la norme NMB-001 du Canada.

The MP5 patient monitor, with the following measurements and interfaces:

- ECG/Respiration, NBP, SpO2, Pressure, Temperature, CO2 (only Mainstream Sensor M2501A)
- LAN, Video Out, Battery, Nurse Call, RS232, and recorder interfaces

can be used in a transport environment such as a road ambulance, airplane or helicopter. For this purpose the monitor fulfills the following additional mechanical, EMC and environmental requirements:

- ***Shock Tests*** according to IEC TR 60721-4-7, Class 7M3. Test procedure according to IEC/EN 60068-2-27 (peak acceleration up to 100g).
- ***Random Vibration*** according to IEC TR 60721-4-7, Class 7M3. Test procedure according to IEC/EN 60068-2-64 (RMS acceleration 5g).
- ***Sinusoidal Vibration*** according to IEC TR 60721-4-7, Class 7M3. Test procedure according to IEC/EN 60068-2-6 (acceleration up to amplitude 2g).
- ***Bump Test*** according to IEC/EN60068-2-29 (peak acceleration 15g, 1000 bumps).
- ***Free Fall Test*** according to EN1789 (covers also IEC TR 60721-4-7 and Class 7M3). Test procedure according to EN 60068-2-32 (height 0.75 m).
- Specification for degrees of protection provided by enclosures according to ***IEC/EN 60529: IP 32***
- ***EN 1789 +A1:2003*** Medical vehicles and their equipment - Road ambulances (chapter 6 - Medical Devices).
- ***Radiated susceptibility 20 V/m*** according to EN ISO 9919 (SpO2)

and EN ISO 21647 (CO2).

- ***Altitude Range*** from -500 to 3000 m operating and -500 to 4600 m storage and transportation.
- Extended radiated susceptibility tests

The MP5 patient monitor with its out-of-hospital parameter set provides a general immunity level of 20 V/m with only few restrictions. Details are as listed below:

- GSM 900: Immunity at 900 MHz (uplink mobile phone), 20V/m (ECG:10V/m), duty cycle 1:8
- GSM 1800: Immunity at 1800 MHz (uplink mobile phone), 20V/m, duty cycle 1:8.
- DECT: Immunity at 1800 MHz (digital cordless phone), 20V/m, duty cycle 1:24
- AM: 1 kHz Immunity from 80 MHz to 1.0 GHz (any radio communication unit, broadcasting and TV transmitter), 20V/m, modulation factor 80%. (ECG: 20 V/m except 600-950 MHz where it is 10V/m and Temperature which holds 3V/m over the full range)

Temperature measurement accuracy may be compromised in the presence of strong electromagnetic fields (>3V/m) in certain small frequency bands.

- ***Magnetic Field* emission** according to MIL STD 461E, Chapter RE101: Radiated emissions, magnetic field, 30 Hz to 100 kHz. Limit class: Army.
- ***Magnetic Field susceptibility:*** Radiated susceptibility, magnetic field, 50, 60 and 400 Hz, 18 µT(15 A/m)
- ***Operating ambient temperature*** testing over the range from 0 to 40 °C (32 to 100 °F).
- ***Operating ambient humidity*** testing up to 95% RH at 40 °C (100 °F), non condensing.

Physical Specifications

Product	Max Weight	W x H x D
M8105A IntelliVue MP5 (including battery, without options)	4 kg ±5% (8.8 lb)	< 259 x 248 x 186 mm (10.2 x 9.76 x 7.32 in)

Environmental Specifications

Item	Condition	Range
Temperature Range	Operating	0 to 40°C (32 to 104 °F)
	Storage (without battery) and Transport	-20 to 60°C (-4 to 140 °F)
Temperature Range with IntelliVue 802.11 Bedside Adapter or IntelliVue Instrument Telemetry Wireless Network or when charging the battery	Operating	0 to 35°C (32 to 95°F)
Temperature Range with Predictive Temperature Unit	Operating	10 to 40°C (50 to 104 °F)
	Storage	-20 to 50°C (-4 to 120 °F)
Humidity Range	Operating	15% to 95% Relative Humidity (RH) (non condensing)
	Storage and Transport	5% to 90% Relative Humidity (RH)
Altitude Range	Operating	-500 m to 3000 m (10000 ft)
	Storage and Transport	-500 m to 4600 m (15000 ft)
Ingress Protection	Monitor without the Predictive Temperature unit	IP32
	Monitor with the Predictive Temperature unit	IPX1

Performance Specifications

Monitor Performance Specifications		
Power Specifications	Power consumption	< 40W average, <65W peak
	Line Voltage	100 to 240 V ~
	Current	1.3 to 0.7A
	Frequency	50/60 Hz
SVGA Display 8.4 inch	Resolution	800 x 600
	Refresh rate	60 Hz
	Useful screen	170.4 x 127.8 mm
	Pixel size	0.213 x 0.213 mm
Sweep Speeds	6.25, 12.5, 25 and 50 mm/s with ±5% accuracy	
Indicators	Alarms Off	red LED
	Alarms	red/yellow/cyan LED
	On/Standby/Error	green/red LED
	AC Power	green LED
	Battery	red-yellow-green LED
Sounds	Audible feedback for user input. Prompt tone. Two different QRS tones, SpO_2 modulation tone. Four different alarm sounds. Remote tone for alarms on other beds in network. Tone for Timer expired.	
Trends: 12, 16, 24 or 32 numerics @ 12 sec, 1 minute, 5 minute resolution. Multiple choices of number of numerics, resolution and duration depending on application area.		
High-Res Trend Waves	Measurements OxyCRG	HR, SpO_2, Resp
	Resolution	Measurement samples are taken at a resolution of four samples per second
	Update Speed	waves are drawn at a speed of 3 cm/ minute

Monitor Performance Specifications		
Events	Information	trigger condition and time, event classification and associated detailed view of episode data
	Episode data	4 minutes of high resolution trend
Alarm Signal	System delay	less than 3 seconds
	Pause duration	1,2,3 minutes or infinite, depending on configuration
	Extended alarm pause	5 or 10 minutes
Review Alarms Window	Information: all alarms / inops, main alarms on/off, alarms acknowledged and time of occurrence	
	capacity	100 items
Real Time Clock	Range: from: January 1, 1997, 00:00 to: December 31, 2080, 23:59	
	Accuracy: < 2 seconds per day (typically)	
	Hold Time: infinite if powered by AC; otherwise at least 48 hours (typical: > 72 hours)	
Buffered Memory	Contents: Active settings, trends, snapshots, events, review alarms	
	Hold Time: infinite if powered by AC; otherwise at least 48 hours (typical: > 72 hours)	
Restart time: After power interruption, an ECG wave will be shown on the display after 30 seconds maximum.		

Battery Specifications

A battery can be used to operate the monitor.

Special Philips high-power batteries M4605A 10.8 V 6000mAh Lithium Ion Battery

- PN 989 8031 31111 (removable)
- Weight: 480g per battery
- Status LEDs indicate charge status of battery

Battery Operating Time:

A new and fully charged battery :

- with basic monitoring configuration (automatic brightness reduction, ECG/RESP and SpO_2 measurements in use, NBP every 15 minutes):4 hours
- with extended monitoring configuration (maximum brightness, ECG/RESP, SpO_2, PRESS/TEMP and CO_2 measurements in use, NBP every 15 minutes, recorder every 15 minutes): 3 hours

Battery Charge Time:

- when monitor is switched off: about 4 hours when monitor is switched on and fully functional: 5 hours and above, depending on configuration (in some configurations the battery may not completely recharge in the monitor, in this case the M8043A Smart Battery Charger should be used).

Interface Specifications

Monitor Interface Specifications		
Network	Standard	IEEE 802.3 10-Base-T
	Connector	RJ45 (8 pin)
	Isolation	1.5 kV
Companion Mode Interface	Connectors	Female ODU (Proprietary)
	Power Sync.	RS-422 compliant input 78.125 kHz (typical)
	LAN signals	IEEE 802.3 10-Base-T compliant
	Serial signals	RS-422 compliant
	Local signals	Internal use only
MIB/RS232	Standard	IEEE 1073-3.2-2000
	Connectors	RJ45 (8 pin)
	Mode	BCC (RxD/TxD cross over)
	Power	5V +/- 5%, 100mA (max.)
	Isolation	1.5kV

Monitor Interface Specifications		
ECG Sync Pulse Mode	Pulse Width	100 +/- 10ms (high)
	Delay from R-wave peak to start of pulse	20 ms maximum per AAMI EC13
	Output voltage swing	+/- 5V minimum
802.11 Bedside Adapter	Wireless Technology	IEEE 802.11 a/b/g
	Frequency Band	2.4 GHz and 5 GHz ISM
Internal WMTS Adapter (US only)	Technology	compatible with Philips Cellular Telemetry System (CTS) cellular infrastructure
	Frequency Band	WMTS, 1395-1400 MHz and 1427-1432 MHz
Internal ISM Adapter	Technology	compatible with Philips Cellular Telemetry System (CTS) cellular infrastructure
	Frequency Band	2.4 GHz ISM
Basic Nurse Call Relay	Connector	3.5 mm phone jack, active closed contact only
	Contact	<= 100 mA, <= 24 V DC
	Isolation	1.5 kV
	Delay	< (Configured Latency + 0.5 sec)
ECG Output/Marker Input (1/4" stereo phone jack with tip, ring, sleeve)		
General	Connector	1/4" phone each with tip, ring, sleeve
	Isolation	500 V

Monitor Interface Specifications		
ECG Output (ring, tip)	Signal Gain	320 to 3200 in 19 steps
	Full Scale on Display	Signal Gain * measured ECG Voltage
	Gain Error	<20%
	Baseline Offset	<150mV
	Bandwidth	1 to 80Hz
	Output Impedance	ECG Output (ring): <2.2KΩ±20% ECG Output/Marker Input (tip) <2.5kΩ ±20%
	Signal delay	≤30ms
Marker Input Requirements (tip)	Signal Type	0 to -12V, negative edge pulse
	Pulse Source Impedance	<7kΩ
	Pulse Fall Time	<100µs
	Pulse Duration	>4ms

Measurement Specifications

ECG/Arrhythmia/ST

Complies with IEC 60601-2-25:1993 + A1:1999 /EN60601-2-25:1995 + A1:1999, IEC 60601-2-27/EN60601-2-27:1994, IEC 60601-2-51:2003 /EN 60601-2-51:2003 and AAMI EC11/EC13:1991/2002.

ECG/Arrhythmia/ST Performance Specifications		
Cardiotach	Range	Adult/pedi: 15 to 300 bpm Neo range: 15 to 350 bpm
	Accuracy	±1% of range
	Resolution	1 bpm
	Sensitivity	≥200 μV_{peak}
PVC Rate	Range	0 to 300 bpm
	Resolution	1 bpm

ECG/Arrhythmia/ST Performance Specifications		
ST Numeric	Range	-20 to +20 mm
	Accuracy	±0.5 mm or 15%, whichever is greater
	Resolution	0.1 mm
Sinus and SV Rhythm Ranges	Brady	Adult: 15 to 60 bpm Pedi: 15 to 80 bpm Neo: 15 to 90 bpm
	Normal	Adult:60 to 100 bpm Pedi: 80 to 160 bpm Neo: 90 to 180 bpm
	Tachy	Adult: > 100 bpm Pedi: >160 bpm Neo: >180 bpm
Bandwidth	Diagnostic Mode	Adult/neo/pedi: 0.05 to 150Hz
	Extended Monitoring Mode	Neo/pedi: 0.5 to 150Hz
	Monitoring Mode	Adult: 0.5 to 40Hz Neo/pedi: 0.5 to 55Hz
	Filter Mode	Adult/neo/pedi: 0.5 to 20Hz
Differential Input Impedance		>2MΩ RA-LL leads (Resp) >5MΩ at all other leads (at 10Hz including patient cable)
Common Mode Rejection Ratio		Diagnostic mode: >86 dB (with a 51 kΩ/47 nF imbalance). Filter mode: >106 dB (with a 51 kΩ/47 nF imbalance).
Electrode Offset Potential Tolerance		±500mV
Auxiliary Current (Leads off Detection)		Active electrode: <100 nA Reference electrode: <900 nA
Input Signal Range		±5 mV

ECG/ Arrhythmia/ST Alarm Specifications	Range	Adjustment
HR	15 to 300 bpm maximum delay: 10 seconds according to AAMI EC 13-1992 standard	Adult:1 bpm steps (15 to 40 bpm) 5 bpm steps (40 to 300 bpm) Pedi/Neo:1 bpm steps (15 to 50 bpm) 5 bpm steps (50 to 300 bpm)
Extreme Tachy	Difference to high limit 0 to 50 bpm	5 bpm steps
	Clamping at 150 to 300 bpm	5 bpm steps
Extreme Brady	Difference to low limit 0 to 50 bpm	5 bpm steps
	Clamping at 15 to 100 bpm	5 bpm steps
Run PVCs	2 PVCs	Not adjustable by user
PVCs Rate	1 to 99 PVCs/ minute	1 PVC
Vent Tach HR	20 to 300 bpm	5 bpm
Vent Tach Run	3 to 99 PVCs/ minute	1 PVC
Vent Rhythm Run	2 to 99 PVCs/ minute	1 PVC
SVT HR	120 to 300 bpm	5 bpm
SVT Run	3 to 99 SV beats	1 SV beat
ST High	-19.8 to +20 mm	0.2 mm
ST Low	-20 to +19.8 mm	0.2 mm

ECG/Arrhythmia/ST Supplemental Information as required by AAMI EC11/13		
Respiration Excitation Waveform		Sinusoidal signal, 260 μA, 39 kHz
Noise Suppression		RL drive gain 44 dB max., max. voltage 1.8 Vrms
Time to Alarm for Tachycardia	Vent Tachycardia 1mV$_{pp}$, 206 bpm	Gain 0.5, Range 6.5 to 8.4 seconds, Average 7.2 seconds
		Gain 1.0 Range 6.1 to 6.9 seconds, Average 6.5 seconds
		Gain 2.0, Range 5.9 to 6.7 seconds, Average 6.3 seconds
	Vent Tachycardia 2 mV$_{pp}$, 195bpm	Gain 0.5, Range 5.4 to 6.2 seconds, Average 5.8 seconds
		Gain 1.0, Range 5.7 to 6.5 seconds, Average 6.1 seconds
		Gain 2.0, Range 5.3 to 6.1 seconds, Average 5.7 seconds
Tall T-Wave Rejection Capability		Exceeds ANSI/AAMI EC 13 Sect. 3.1.2.1(c) minimum recommended 1.2 mV T-Wave amplitude
Heart Rate Averaging Method		Three different methods are used: Normally, heart rate is computed by averaging the 12 most recent RR intervals. For runs of PVCs, up to 8 RR intervals are averaged to compute the HR. If each of 3 consecutive RR intervals is greater than 1200 ms (that is, rate less than 50 bpm), then the 4 most recent RR intervals are averaged to compute the HR.
Response Time of Heart Rate Meter to Change in Heart Rate		HR change from 80 to 120 bpm: Range: [6.4 to 7.2 seconds] Average: 6.8 seconds HR change from 80 to 40 bpm: Range: [5.6 to 6.4 sec] Average: 6.0 seconds

ECG/Arrhythmia/ST Supplemental Information as required by AAMI EC11/13	
Heart Rate Meter Accuracy and Response to Irregular Rhythm	Ventricular bigeminy: 80 bpm Slow alternating ventricular bigeminy: 60 bpm Rapid alternating ventricular bigeminy: 120 bpm Bidirectional systoles: 90 bpm
Accuracy of Input Signal Reproduction	Methods A and D were used to establish overall system error and frequency response.

Respiration

Respiration Performance Specifications		
Respiration Rate	Range	Adult/pedi: 0 to 120 rpm Neo: 0 to 170 rpm
	Accuracy	at 0 to 120 rpm ±1 rpm at 120 to 170 rpm ±2 rpm
	Resolution	1 rpm
Bandwidth		0.3 to 2.5Hz (–6dB)
Noise		Less than 25mΩ (rms) referred to the input

Respiration Alarm Specifications	Range	Adjustment	Delay
High	Adult/pedi: 10 to 100 rpm Neo: 30 to 150 rpm	under 20 rpm: 1 rpm steps over 20 rpm: 5 rpm steps	max. 14 seconds
Low	Adult/pedi: 0 to 95 rpm Neo: 0 to 145 rpm	under 20 rpm: 1 rpm steps over 20 rpm: 5 rpm steps	for limits from 0 to 20 rpm: max. 4 seconds for limits above 20 rpm: max. 14 seconds

Respiration Alarm Specifications	Range	Adjustment	Delay
Apnea Alarm	10 to 40 seconds	5 second steps	

SpO_2

Complies with EN ISO 9919:2005 (except alarm system; alarm system complies with IEC 60601-2-49:2001).

Measurement Validation: The SpO_2 accuracy has been validated in human studies against arterial blood sample reference measured with a CO-oximeter. Pulse oximeter measurements are statistically distributed, only about two-thirds of the measurements can be expected to fall within the specified accuracy compared to CO-oximeter measurements. Display Update Period: Typical: 2 seconds, Maximum: 30 seconds. Max. with NBP INOP suppression on: 60 seconds.

SpO_2 Performance Specifications		
SpO_2	Range	0 to 100%
	Accuracy[a]	**Philips Reusable Sensors:** M1191A, M1191AL, M1191ANL, M1191B, M1191BL, M1192A, M1192AN = 2% (70% to 100%) M1193A, M1193AN, M1194A, M1194AN, M1195A, M1195AN, M1196A = 3% (70% to 100%) **Philips Reusable Sensors with M1943A(L):** M1191T, M1192T, M1193T (Adult), M1196T = 3% (70% to 100%) M1193T (Neonate) = 4% (70% to 100%) **Philips Disposable Sensors with M1943A(L):** M1132A, M1133A (adult/infant) = 2% M1131A, M1133A (neonate), M1901B, M1902B, M1903B, M1904B = 3% (70% to 100%) **NellcorPB® Sensors with M1943A(L):** MAX-A, MAX-AL, MAX-P, MAX-I, MAX-N, D-25, D-20, I-20, N-25, OxiCliq A, P, I, N = 3% (70% to 100%) **Masimo Reusable Sensors® with LNOP MP12 or LNC MP10:** LNOP DC-I, LNOP DC-IP, LNOP YI, LNCS DC-I, LNCS DC-IP, LNCS TF-I: 2% (70% to 100%) LNOP TC-I, LNCS TC-I: 3.5% (70% to 100%) **Masimo Disposable Sensors® with LNOP MP12 or LNC MP10:** LNOP Adt, LNOP Adtx, LNOP Pdt, LNOP Pdtx, LNOP Inf-L, LNCS Adtx, LNCS Pdtx, LNCS Inf-L: 2% (70% to 100%) LNOP Neo-L, LNOP NeoPt-L, LNCS Neo-L, LNCS NeoPt-L: 3% (70% to 100%)
	Resolution	1%
Pulse	Range	30 to 300 bpm
	Accuracy	±2% or 1 bpm, whichever is greater
	Resolution	1 bpm

SpO_2 Performance Specifications	
Sensors	Wavelength range: 500 to 1000 nm Emitted Light Energy: ≤ 15mW Information about the wavelength range can be especially useful to clinicians (for instance, when photodynamic therapy is performed)
Pulse Oximeter Calibration Range	70 - 100%

a. The specified accuracy is the root-mean-square (RMS) difference between the measured values and the reference values

SpO_2 Alarm Specifications	Range	Adjustment	Delay
SpO_2	Adult: 50 to 100% Pedi/Neo: 30 to 100%	1% steps	(0, 1, 2, 3,... 30) + 4 seconds
Desat	Adult: 50 to Low alarm limit Pedi/Neo: 30 to Low alarm limit	1% steps	
Pulse	30 to 300 bpm	Adult: 1 bpm steps (30 to 40 bpm) 5 bpm steps (40 to 300 bpm) Pedi/Neo: 1 bpm steps (30 to 50 bpm) 5 bpm steps (50 to 300 bpm)	max. 14 seconds
Tachy-cardia	Difference to high limit 0 to 50 bpm	5 bpm steps	max. 14 seconds
	Clamping at 150 to 300 bpm	5 bpm steps	

SpO_2 Alarm Specifications	Range	Adjustment	Delay
Brady-cardia	Difference to low limit 0 to 50 bpm	5 bpm steps	max. 14 seconds
	Clamping at 30 to 100 bpm	5 bpm steps	

NBP

Complies with IEC 60601-2-30:1999/EN60601-2-30:2000.

NBP Performance Specifications		
Measurement Ranges	Systolic	Adult: 30 to 270 mmHg (4 to 36 kPa) Pedi: 30 to 180 mmHg (4 to 24 kPa) Neo: 30 to 130 mmHg (4 to 17 kPa)
	Diastolic	Adult: 10 to 245 mmHg (1.5 to 32 kPa) Pedi: 10 to 150 mmHg (1.5 to 20 kPa) Neo: 10 to 100 mmHg (1.5 to 13 kPa)
	Mean	Adult: 20 to 255 mmHg (2.5 to 34 kPa) Pedi: 20 to 160 mmHg (2.5 to 21 kPa) Neo: 20 to 120 mmHg (2.5 to 16 kPa)
	Pulse Rate	Adult:40 to 300 Pedi: 40 to 300 Neo: 40 to 300
Accuracy		Max. Std. Deviation: 8 mmHg (1.1 kPa) Max. Mean Error: ±5 mmHg (±0.7 kPa)

NBP Performance Specifications		
Pulse Rate Measurement Accuracy		40 to 100 bpm: ± 5 bpm 101 to 200 bpm: ± 5% of reading 201 to 300 bpm: ± 10% of reading (average over NBP measurement cycle)
Heart Rate Range		40 to 300 bpm
Measurement Time		Typical at HR > 60bpm Auto/manual: 30 seconds (adult) 25 seconds (neonatal) Stat: 20 seconds Maximum time: 180 seconds (adult/pediatric) 90 seconds (neonates)
Cuff Inflation Time		Typical for normal adult cuff: Less than 10 seconds Typical for neonatal cuff: Less than 2 seconds
Initial Cuff Inflation Pressure		Adult: 165 ±15 mmHg Pedi: 130 ±15 mmHg Neo: 100 ±15 mmHg
Auto Mode Repetition Times		1, 2, 2.5, 3, 5, 10, 15, 20, 30, 45, 60 or 120 minutes
STAT Mode Cycle Time		5 minutes
Venipuncture Mode Inflation		
Inflation Pressure	Adult	20 to 120 mmHg (3 to 16 kPa)
	Pediatric	20 to 80 mmHg (3 to 11 kPa)
	Neonatal	20 to 50 mmHg (3 to 7 kPa)
Automatic deflation after	Adult/ pediatric	170 seconds
	Neonatal	85 seconds

Measurement Validation: In adult and pediatric mode, the blood pressure measurements determined with this device comply with the American National Standard for Electronic or Automated Sphygmomanometers (ANSI/AAMI SP10 - 1992) in relation to mean error and standard deviation, when compared to intra-arterial or auscultatory measurements (depending on the configuration) in a representative patient population. For the auscultatory reference the 5th Korotkoff sound was used to determine the diastolic pressure.

In neonatal mode, the blood pressure measurements determined with this device comply with the American National Standard for Electronic or Automated Sphygmomanometers (ANSI/AAMI SP10 - 1992 and AAMI/ANSI SP10A -1996) in relation to mean error and standard deviation, when compared to intra-arterial measurements in a representative patient population.

NBP Alarm Specifications	Range	Adjustment
Systolic	Adult: 30 to 270 mmHg (4 to 36 kPa)	10 to 30 mmHg: 2 mmHg (0.5 kPa) > 30 mmHg: 5 mmHg (1kPa)
	Pedi: 30 to 180 mmHg (4 to 24 kPa)	
	Neo: 30 to 130 mmHg (4 to 17 kPa)	
Diastolic	Adult: 10 to 245 mmHg (1.5 to 32 kPa)	
	Pedi: 10 to 150 mmHg (1.5 to 20 kPa)	
	Neo: 10 to 100 mmHg (1.5 to 13 kPa)	
Mean	Adult: 20 to 255 mmHg (2.5 to 34 kPa)	
	Pedi: 20 to 160 mmHg (2.5 to 21 kPa)	
	Neo: 20 to 120 mmHg (2.5 to 16 kPa)	

NBP Overpressure Settings		
Adult	> 300 mmHg (40 kPa) > 2 sec	not user adjustable
Pedi	> 300 mmHg (40 kPa) > 2 sec	
Neo	> 150 mmHg (20 kPa) > 2 sec	

Invasive Pressure and Pulse

Complies with IEC 60601-2-34:2000/EN60601-2-34:2000.

Invasive Pressure Performance Specifications		
Measurement Range		–40 to 360 mmHg
Pulse Rate	Range	25 to 350 bpm
	Accuracy	±1% Full Range
	Resolution	1 bpm
Input Sensitivity		Sensitivity:5μV/V/mmHg (37.5μV/V/kPa) Adjustment range:±10%
Transducer		Load Impedance:200 to 2000 Ω (resistive) Output Impedance:≤3000 Ω (resistive)
Frequency Response		dc to 12.5 Hz or 40 Hz
Zero Adjustment	Range:	±200 mmHg (±26 kPa)
	Accuracy	±1 mmHg (±0.1 kPa)
	Drift	Less than 0.1mmHg/°C (0.013 kPa/°C)
Gain Accuracy	Accuracy	±1%
	Drift	Less than 0.05%/°C
	Non linearity and Hysteresis	Error of ≤ 0.4% FS (@CAL 200 mmHg)
Overall Accuracy	(including transducer)	± 4% of reading or ± 4 mmHg (± 0.5 kPa), whichever is greater
Volume displacement of CPJ840J6		0.1 mm3 /100 mmHg

Invasive Pressure Alarm Specifications	Range	Adjustment	Delay
Pressure	–40 to 360 mmHg (–5.0 to 48 kPa)	-40 to 30 mmHg 2 mmHg (0.5 kPa) > 30 mmHg 5 mmHg (1 kPa)	max. 12 seconds
Extreme High	Difference to high limit 0 to 25 mmHg	5 mmHg steps (0.5 kPa)	
	Clamping at -40 to 360 mmHg	5 mmHg steps (1.0 kPa)	
Extreme Low	Difference to low limit 0 to 25 mmHg	5 mmHg steps (0.5 kPa)	
	Clamping at -40 to 360 mmHg	5 mmHg steps (1.0 kPa)	
Pulse	25 to 300 bpm	Adult: 1 bpm steps (25 to 40 bpm) 5 bpm steps (40 to 300 bpm) Pedi/Neo: 1 bpm steps (25 to 50 bpm) 5 bpm steps (50 to 300 bpm)	
Tachycardia	Difference to high limit 0 to 50 bpm	5 bpm steps	max. 14 seconds
	Clamping at 150 to 300 bpm	5 bpm steps	
Bradycardia	Difference to low limit 0 to 50 bpm	5 bpm steps	max. 14 seconds
	Clamping at 25 to 100 bpm	5 bpm steps	

Temp

Complies with EN 12470-4:2000

Temp Performance Specifications		
Temp	Range	–1 to 45 °C (30 to 113 °F)
	Resolution	0.1 °C (0.2 °F)
	Accuracy	±0.1 °C (±0.2 °F)
Average Time Constant		Less than 10 seconds
Alarms	Range	–1 to 45 °C (30 to 113 °F)
	Adjustment	-1 to 35 °C (30 to 95 °F): 0.5 °C (1.0 °F) steps 35 to 45 °C (95 to 113 °F): 0.1 °C (0.2 °F) steps

Temp Alarm Specifications	Range	Adjustment
Temp High/Low Alarms	–1 to 45 °C (30 to 113 °F)	-1 to 35 °C (30 to 95 °F), 0.5 °C (1.0 °F) steps 35 to 45 °C (95 to 113 °F), 0.1 °C (0.2 °F) steps

Predictive Temperature

Performance Specifications	
Technology	Welch Allyn® SureTemp Plus®
Probe Types	oral/axillary, rectal
Temperature Measurement Range	26.7 to 43.3 °C (80 to 110 °F)
Resolution	±0.1 °C (±0.2 °F)
Accuracy (Oral, axillary and rectal measurements)	±0.1 °C (±0.2 °F) (in continuous mode, complies with ASTM 1112-00

CO_2

The CO_2 measurement complies with EN ISO 21647:2004 + Cor.1:2005 (except alarm system; alarm system complies with IEC 60601-2-49:2001).

Mainstream CO_2 Performance Specifications		
CO_2	Range	0 to 150 mmHg (0 to 20.0 kPa)
	Accuracy	after 2 minutes warmup: For values between 0 and 40 mmHg:±2.0 mmHg (±0.29 kPa) For values from 41 to 70 mmHg: ±5% of reading For values from 71 to 100 mmHg: ±8% of reading The specifications are valid for standard gas mixtures, balance air, fully hydrated at 35°C, P_{abs} = 760 mmHg, flow rate = 2 l/min.
	Resolution	Numeric: 1.0 mmHg (0.1 kPa) Wave: 0.1 mmHg (0.01 kPa)
	Stability: Short term drift Long term drift	 ±0.8 mmHg over four hours Accuracy specification will be maintained over a 120 hour period
awRR	Range	2 to 150 rpm
	Accuracy	±1 rpm
Warm-up Time		2 minutes with CO_2 transducer attached for full accuracy specification
Response Time		Less than 60 ms (with adult or infant reusable or disposable adapter)

Ordering Information

Ordering information for the M8105A patient monitor is given here.

Basic Functionality	MP5 (M8105A)
Order one Hxx option	
General/ICU Configuration	H10
Neonatal Configuration	H20
OR/Anesthesia Configuration[a]	H30
Cardiac Configuration	H40
Order one Axx option	
3 Realtime Wave Segments	A03
4 Realtime Wave Segments	A04

a. If IntelliVue G1/G5 is required, H30 must be ordered.

Application Options

Application Options		M8105A
Cardiac Applications		
	Basic Arrhythmia	Incl.
	Full Arrhythmia	C01
Neonatal Applications		
	Neonatal Event Surveillance (includes OxyCRG)	C04
Clinical Applications		
	Drug Calculator	C05
	12-Lead ECG Application (conventional)	C12
	ST Map	C13

ProtocolWatch

Application Options	M8105A
Protocol Watch - Sepsis Screening Tool	P01

Measurement Options

Parameter Add-ons	M8105A
ECG, Resp, NBP, SpO2	B20
ECG, Resp, NBP, SpO2, Predictive Temp.	B21
ECG, Resp, NBP, SpO2, Press & Temp (1x)	B22
ECG, Resp, NBP, SpO2 + TAAP + Predictive Temp	B31
ECG, Resp, NBP, SpO2 + TAAP + Press & Temp (1x)	B32
ECG, Resp, NBP, SpO2, Press & Temp, Predictive Temp	B41
ECG, Resp, NBP, SpO2, Press & Temp (2x)	B42
ECG, Resp, NBP, SpO2, Press & Temp, CO2- ready	B43

Hardware Options

Hardware Add-Ons	M8105A
Built-in recorder	E05
Bed hanger Mount	E21
Quick Release Mount	E22
1x High Power Lithium-Ion battery	E24

Basic Mandatory Interface Options

One of the following three options must be ordered

Interfaces	M8105A
LAN & Video Output	J01
LAN & Battery Operation	J02
Advanced System Interface	J40

Interface Options

Interfaces	M8105A
Full Networking software	C15
Companion Mode Interface	J21
IntelliVue 802.11 Bedside Adapter	J35
Instrument Telemetry 1.4 GHz	J45
Instrument Telemetry 2.4 GHz	J47

Upgrade Options

Upgrade	M8105AU
Waves	
4 waves	A04
Interfaces	
Advanced System Interface	J40
Parameter Add-ons	
Add Predictive Temperature to B20	B21
Add Predictive Temperature to B22	B41
Add Press & Temp to B22	B42
Add CO_2-ready to B22	B43
Clinical Applications	
Full Arrhythmia Capability	C01
Neonatal Event Review	C04
Drug Calculator	C05
ST-Map	C13
Full Networking Software	C15
Protocol Watch	
Sepsis Screening	P01
Rev SW + Sepsis Screening	P41
Hardware Add-Ons	
Built-in Recorder	E05
Bed Hanger Mount	E21
Interfaces	
Companion Mode Interface for System Software F.0 or higher	J21
IntelliVue 802.11 bedside adapter	J35
Instrument Telemetry 1.4 Ghz	J45
Instrument Telemetry 2.4 Ghz	J47
Companion Mode Interface for System Software E.0 - incl. upgrade to Rev. F.0	J99
Upgrade to the latest software release	SU0

Sensors and Disposables

Accessory	M8105A
3-lead Accessories Bundle ICU-AAMI one piece ECG cable (Trunk/Lead set)	G06
3-lead Accessories Bundle ICU-IEC one piece ECG cable (Trunk/Lead set)	G07
5-lead Accessories Bundle ICU-AAMI one piece ECG cable (Trunk/Lead set)	G08
5-lead Accessories Bundle ICU-IEC one piece ECG cable (Trunk/Lead set)	G09
5-lead Accessories Bundle ICU-AAMI	H06
5-lead Accessories Bundle ICU-IEC	H07
5-lead Accessories Bundle OR-AAMI	H08
5-lead Accessories Bundle OR-IEC	H09
Accessories Bundle Neonatal-AAMI	H14
Accessories Bundle Neonatal-IEC	H15
3-lead Accessories Bundle ICU-AAMI	H16
3-lead Accessories Bundle ICU-IEC	H17
3-lead Accessories Bundle OR-AAMI	H18
3-lead Accessories Bundle OR-IEC	H19
CO_2 Mainstream Sensor	N01
Reusable Adult Airway Adapter ($msCO_2$)	N02
Reusable Infant Airway Adapter ($msCO_2$)	N03
Single Use Adult Airway Adapter ($msCO_2$)	N04
Single USe Infant Airway Adapter ($msCO_2$)	N05
CO_2 Sidestream Sensor	N11
Non-intubated Adult Airway Adapter ($ssCO_2$)	N12

Accessory	M8105A
Non-intubated pediatric Airway Adapter (ssCO$_2$)	N13
Intubated Adult Airway Adapter (ssCO$_2$)	N14
Intubated Pediatric Airway Adapter (ssCO$_2$)	N15
Predictive Temp Oral with 25 probe covers	T01
Predictive Temp Rectal with 25 probe covers	T02
Calibration Key (453564033691)	n/a

Related Products

M3086A Support Tool

Mounting Information

The Intellivue MP5 Roll Stand Mounting Kit (Order No. 989803153021) is compatible with the table top mount and the standard mounting plate. For information on other mounting hardware, contact your local Philips sales representative. For GCX mounting hardware information, see www.gcx.com/philips.

Documentation

All documentation is available in .pdf format on documentation CD-ROM. Additionally, a printed copy of the Instructions for Use and Quick Guide ships with each monitor.

- Instructions for Use (printed)
- Quick Guide (printed)
- Installation and Service Guide
- Configuration Guide
- Documentation CD-ROM
- Training Guide (printed)

Cables M8022A

Length	Description[a]	Product/ Option
Analog Video		
1.5 m	Monitor to Display	M8022A #VA2
3.0 m	Monitor to Display	M8022A #VA3
10.0 m	Monitor to Display	M8022A #VA6
15.0 m	Monitor to Display	M8022A #VA7
25.0 m	Monitor to Display	M8022A #VA9
MIB RS/232 Cables		
1.5 m	Serial cable	M8022A #SR2
3.0 m	Serial cable	M8022A #SR3
10.0 m	Serial cable	M8022A #SR6
15.0 m	Serial cable	M8022A #SR7
25.0 m	Serial cable	M8022A #SR9
Touch Cables		
1.5 m	Touch cable	M8022A #TC2
3.0 m	Touch cable	M8022A #TC3
10.0 m	Touch cable	M8022A #TC6
15.0 m	Touch cable	M8022A #TC7
25.0 m	Touch cable	M8022A # TC9
Nurse Call Relay Cable		
3.0 m	standard (backward compatible) nurse paging relay cable[b]	M8022A #NC3
10.0 m	cable	M8022A #NC6
ECG Out Cable		
3.0 m	standard ECG out cable[c]	M8022A #SY3
PWD (Patient Worn Device) Interface Cables		
0.5 m	PWD Interface Cable (PWD side)	989803143481
2.0m	PWD Interface Cable (monitor side)	989803146911

a. Both ends terminated with HDSUB15 (VGA) connectors.

b. One end terminated with phone plug; other end w/o connector.

c. Both ends terminated with 1/4" phone plug.

ECG Accessories

This symbol indicates that the cables and accessories are designed to have special protection against electric shocks (particularly regarding allowable leakage currents), and are defibrillator proof.

Trunk Cables

	3-Electrode Cable Set	5-Electrode Cable Set	6-Electrode Cable Set	10-Electrode Cable set (5+5)	10-Electrode Cable set (6+4)
Part No.	M1669A	M1668A	M1667A	M1663A	M1665A
Length	2.7m	2.7m	2.7m	2.0m	2.7m

3-Electrode Cable Sets

Description	Length	AAMI Part No.	IEC Part No.
OR Grabber shielded	1.0m	M1675A	M1678A
ICU Grabber shielded	1.0m	M1671A	M1672A
ICU snap shielded	1.0m	M1673A	M1674A
ICU Clip non-shielded	0.45m	M1622A	--
ICU Clip non-shielded	0.7m	M1624A	M1626A

5-Electrode Cable Sets

Description	Length	AAMI Part No.	IEC Part No.
OR Grabber shielded	1.0m/1.6m	M1973A	M1974A
ICU Grabber shielded	1.0m/1.6m	M1968A	M1971A
ICU Snap shielded	1.0m/1.6m	M1644A	M1645A
ICU Miniclip non-shielded	0.7m/1.3m	M1647A	M1648A

6-Electrode Cable Sets

Description	Length	AAMI Part No.	IEC Part No.
OR Grabber	1.0m/1.6m	M1684A	M1685A
ICU Grabber	1.0m/1.6m	M1680A	M1681A
ICU Snap	1.0m/1.6m	M1682A	M1683A

10-Electrode (5+5)Cable Sets

Description	Length	AAMI Part No.	IEC Part No.
ICU Grabber, chest, shielded	1.0m	M1976A	M1978A
ICU Snap, chest, shielded	1.0m	M1602A	M1604A
OR Grabber, chest, shielded	1.0m	M1979A	M1984A
For Limb Leads see 5-electrode cable sets			

10-Electrode (6+4)Cable Sets

Description	Length	AAMI Part No.	IEC Part No.
ICU Grabber, chest, shielded	1.0m	M1532A	M1533A
ICU Snap, chest, shielded	1.0m	M1537A	M1538A
OR Grabber, chest, shielded	1.0m	M1557A	M1558A

Description	Length	AAMI Part No.	IEC Part No.
For Limb Leads see 6-electrode cable sets			

One-piece Cables

Description	Length	AAMI Part No.	IEC Part No.
3-lead Grabber, ICU	1.0m	989803143181	989803143171
5-lead Grabber, ICU	1.0m	989803143201	989803143191

Radio-translucent Cables

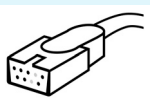
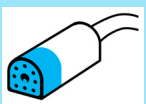
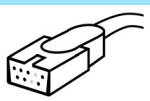
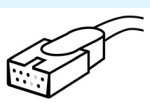
Pack of five single wires, radio-translucent, 0.9m, M1649A

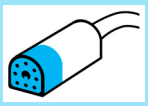
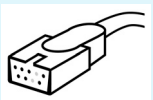
Set Combiners and Organizers

Set combiners and organizers		Part No.
Set combiner	3-electrode	M1501A
	5-electrode	M1502A
Set organizer for shielded leadsets - grabber and snap	3-electrode	M1503A
	4-electrode	M1664A
	5-electrode	M1504A
	6-electrode	M1679A
Set organizer for non-shielded lead sets - miniclip	3-electrode	M1636A
	5-electrode	M1638A
Bedsheet clip		M1509A
Replacement red cover for trunk cable (for 5-electrode cable sets)		989808148861

Philips FAST SpO_2 Accessories

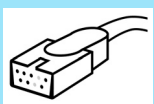
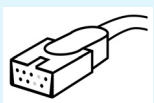
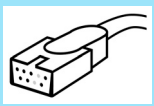
Philips Reusable Sensors

Part Number	Description	Connector Type
M1191A/B	Adult Sensor (2m cable)	Philips 8-pin 
M1191AL/ BL	Adult Sensor (3m cable)	
M1191ANL	Adult Sensor (3m cable) Nellcor OxiMax-compatible[a]	
M1191T	Adult Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 
M1192A	Small Adult/Pediatric sensor (1.5m cable)	Philips 8-pin 
M1192AN	Small Adult/Pediatric sensor (1.5m cable) Nellcor OxiMax-compatible[a]	
M1192T	Small Adult Pediatric sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 
M1193A	Neonatal Hand/Foot Sensor (1.5m cable)	Philips 8-pin 
M1193AN	Neonatal Hand/Foot Sensor (1.5m cable) Nellcor OxiMax-compatible[a]	
M1193T	Neonatal Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 

Part Number	Description	Connector Type
M1194A	Adult/Pediatric Clip Sensor (ear) (1.5m cable)	Philips 8-pin 
M1194AN	Adult/Pediatric Clip Sensor (ear) (1.5m cable) Nellcor OxiMax-compatible[a]	
M1195A	Infant Sensor (1.5m cable)	Philips 8-pin 
M1195AN	Infant Sensor (1.5m cable) Nellcor OxiMax-compatible[a]	
M1196A	Adult Clip Sensor (3m cable)	Philips 8-pin 
M1196T	Adult Clip Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 

a. only in combination with Philips FAST-SpO_2 and Philips OxiMax-compatible patient monitors.

Philips Disposable Sensors

Part Number	Description	Connector Type
M1131A	Adult/Pediatric Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 
M1132A	Infant Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 
M1133A	Adult/Infant/ Neonatal Sensor (requires M1943A (1.1m) or M1943AL (3m) adapter cable)	Generic D-Sub 

NELLCOR® Disposable Sensors[1]:

Purchase Nellcor OxiCliq sensors and adapter cables directly from Tyco Healthcare.

Product Number	Description	Philips Part Number
OxiMax MAX-A [a]	Adult Sensor	**M1904B**[b]
OxiMax MAX-AL [a]	Adult Sensor (long cable)	n/a
OxiMax MAX-P [a]	Pediatric Sensor	**M1903B**[b]
OxiMax MAX-I [a]	Infant Sensor	**M1902B**[b]
OxiMax MAX-N [a]	Neonatal Sensor	**M1901B**[b]
Oxisensor II D-25 [a]	Adult Sensor	n/a
Oxisensor II D-20 [a]	Pediatric Sensor	n/a
Oxisensor II I-20 [a]	Infant Sensor	n/a
Oxisensor II N-25 [a]	Neonatal Sensor	n/a
OxiCliq A [c]	Adult Sensor	n/a
Oxicliq P [c]	Pediatric Sensor	n/a
OxiCliq I [c]	Infant Sensor	n/a
OxiCliq N [c]	Neonatal Sensor	n/a

a. Requires M1943 A(L) adapter cable

b. not available from Philips in the U.S.A.

c. Requires M1943 A(L) **and** OC3 adapter cables

1. Nellcor, OxiMax and OxiCliq are trademarks of Nellcor Puritan Bennett Inc., a part of Tyco Healthcare.

MASIMO LNOP®[1] Reusable Sensors:

Product Number	Description	Philips Part Number
LNOP DC-I	Adult Sensor	**989803140321**
LNOP DC-IP	Pediatric Sensor	**989803140331**
LNOP-YI	Reusable Multi-Site Sensor	n/a
LNOP TC-I	Tip Clip reusable Sensor	**989803140341**

MASIMO LNCS®[1] Reusable Sensors:

Product Number	Description	Philips Part Number
LNCS DC-I	Adult Sensor	**989803148281**
LNCS DC-IP	Pediatric Sensor	**989803148291**
LNCS-TC-I	Reusable Ear Sensor	**989803148301**
LNCS TF-I	Reusable Forehead Sensor	**989803148311**

MASIMO LNOP® Disposable Adhesive Sensors:

Product Number	Description	Philips Part Number
LNOP Adt	Adult Sensor	**989803140231**
LNOP Adtx	Adult Sensor	n/a
LNOP Pdt	Pediatric Adhesive Sensor	**989803140261**
LNOP Pdtx	Pediatric Sensor	n/a
LNOP INF-L	Neo/Infant Adhesive Sensor	**989803140311**
LNOP NEO-L	Neo Adhesive Sensor	**989803140291**
LNOP NEOPT-L	Neo Pre-Term Sensitive Skin Adhesive Sensors	**989803140301**

MASIMO LNCS® Disposable Adhesive Sensors:

Product Number	Description	Philips Part Number
LNCS Adtx	Adult Finger Sensor	**989803148231**
LNCS Pdtx	Pediatric Finger Sensor	**989803148241**
LNCS INF-L	Infant Toe Sensor	**989803148251**
LNCS NEO-L	Neo Foot Sensor or Adult Finger Sensor	**989803148271**
LNCS NEOPT-L	Neo Pre-Term Sensitive Skin Adhesive Sensors	**989803148261**

The Philips M8105A uses Masimo certified pulse oximetry for reduced noise and low perfusion performance with Masimo Sensors under the Masimo NR&LP protocol available from Masimo.

1. LNOP and LNCS are federally registered trademarks of Masimo Corporation

Extension/Adapter Cables:

Part Number	Description
M1941A	Extension Cable (2m) (8-pin to 8-pin)
M1943A	Adapter Cable (1.1m) for Philips and Nellcor disposable sensors (8-pin to 9-pin D-Sub)
M1943AL	Adapter Cable (3m) for Philips and Nellcor disposable sensors (8-pin to 9-pin D-Sub)
OC3	Adapter cable for OxiCliq Sensors (available from Nellcor only)
LNOP MP12 (451261000761)	LNOP MP Series Patient Cable (3.6 m) Adapter Cable for Masimo LNOP Sensors
LNC MP10 (989803148221)	LNCS MP Series Patient CAble (3.0 m) Adapter Cable for Masimo LNCS Sensors

Non Invasive Blood Pressure Accessories

These cuffs and tubings are designed to have special protection against electric shocks (particularly regarding allowable leakage currents), and are defibrillator proof.

Multi-Patient Comfort Cuffs and Disposable Cuffs		
Patient Category	**Disposable cuff**	**Reusable cuff**
Adult (Thigh)	M1879A	M1576A
Large Adult	M1878A	M1575A
Adult	M1877A	M1574A
Small Adult	M1876A	M1573A
Pediatric	M1875A	M1572A
Infant	M1874A	M1571A
Tubing: Use M1598B or M1599B		

Reusable Cuff Kits	Part No.
Infant, pediatric, small adult, adult	M1577A
Small adult, adult, large adult, thigh	M1578A
Infant, pediatric, small adult, adult, large adult, thigh	M1579A

Adult/Pediatric Antimicrobial Coated Reusable cuffs			
Cuff Size (color)	**Circumference (cm)**	**Bladder Width**	**Single-Hose Part No.**
Infant (orange)	9.0 - 14.8	5.4 cm 2.1 inches	M4552A
Pediatric (green)	13.8 - 21.5	8.0 cm 3.1 inches	M4553A
Small Adult (royal blue)	20.5 - 28.5	10.6 cm 4.2 inches	M4554A
Adult (navy blue)	27.5 - 36.5	13.5 cm 5.3 inches	M4555A
Adult X-long (navy blue)	27.5 - 36.5	13.5 cm 5.3 inches	M4556A
Large Adult (burgundy)	35.5 - 46.0	17.0 cm 6.7 inches	M4557A
Large Adult X-long (burgundy)	35.5 - 46.0	17.0 cm 6.7 inches	M4558A
Thigh (grey)	45 - 56.5	21.0 cm 8.3 inches	M4559A
Tubing: Use M1598B or M1599B			

Adult/Pediatric Soft Single Patient Single-Hose Disposable Cuffs			
Patient Category	**Limb Circumference**	**Bladder Width**	**Disposable cuff Part No.**
Adult (Thigh)	45.0-56.5 cm	20.4 cm	M4579A
Large Adult X-long	35.5-46.0 cm	16.4 cm	M4578A
Large Adult	35.5-46.0 cm	16.4 cm	M4577A
Adult X-long	27.5 to 36.5 cm	16.4 cm	M4576A
Adult	27.5-36.5 cm	13.1 cm	M4575A
Small Adult	20.5-28.5 cm	10.4 cm	M4574A
Pediatric	15.0-21.5 cm	8.0 cm	M4573A
Infant	9.0-15.0 cm	5.6 cm	M4572A
Tubing: Use M1598B or M1599B			

Neonatal/Infant Cuffs (Disposable, non-sterile)			
Cuffs	**Limb Circumference**	**Bladder Width**	**Part No.**
Size 1	3.1 to 5.7 cm	2.2 cm	M1866A
Size 2	4.3 to 8.0 cm	2.8 cm	M1868A
Size 3	5.8 to 10.9 cm	3.9 cm	M1870A
Size 4	7.1 to 13.1 cm	4.7 cm	M1872A
Tubing: Use M1596B or M1597B			

Cuff Tubing		
Adult	1.5 m /4.9’	M1598B
	3.0 m/9.8’	M1599B
Neonatal	1.5 m /4.9’	M1596B
	3.0 m/9.8’	M1597B

Temperature Accessories

Temperature Probes	Part No.
Reusable	
General purpose probe	21075A
Small flexible vinyl probe (Infant/Pediatric)	21076A
Attachable surface probe	21078A
Disposable	
General purpose probe	M1837A
Skin probe	21091A
Esophageal/Stethoscope Probe (12 French)	21093A
Esophageal/Stethoscope Probe (18 French)	21094A
Esophageal/Stethoscope Probe (24 French)	21095A
Foley Catheter Probe (12 French)	M2255A
Foley Catheter Probe (16 French)	21096A
Foley Catheter Probe (18 French)	21097A
Adapter cable 1.5m/4.9’	21082B
Adapter cable 3.0m/9.8’	21082A

PRESS Accessories

These transducers and accessories are designed to have special protection against electric shocks (particularly regarding allowable leakage currents), and are defibrillator proof.

Pressure Transducers and Accessories	Part No.
Reusable	
Reusable pressure transducer 5 µV/V/mmHg sensitivity	CPJ840J6
Sterile disposable pressure domes for CPJ840J6 (pack of 50)	CPJ84022

Pressure Transducers and Accessories	Part No.
Transducer holder for CPJ840J6 (pack of 4)	CPJ84046
IV pole mount for CPJ840J6	CPJ84447
Disposable (EU/EFTA only. Not available in USA)	
Single channel disposable sensor kit (20)	M1567A
Dual channel disposable sensor kit (20)	M1568A
Transducer holder for M1567/8A	M2271A
IV pole mount for M1567/8A	M2272C
Adapter cable for disposable sensor kit, 3.0m, for M1567/8A	M1634A

Mainstream CO_2 Accessories

Description	Part No.
CO_2 Sensor	M2501A
Adult/Pediatric Airway Adapter (reusable)	M2513A
Infant Airway Adapter (reusable)	M2516A
Adult Airway Adapter (single patient use)	M2533A
Infant Airway Adapter (single patient use)	M2536A

Sidestream CO_2 Accessories

Description	Part No.
CO_2 Sensor	M2741A
Nasal and Oral-Nasal Cannulas	
CO_2 Nasal Cannula, Adult	M2744A
CO_2 Nasal Cannula, Pediatric	M2745A
CO_2 Nasal Cannula, Infant	M2746A
CO_2 / O_2 Nasal Cannula, Adult	M2750A
CO_2 / O_2 Nasal Cannula, Pediatric	M2751A
CO_2 Oral-Nasal Cannula, Adult	M2756A
CO_2 Oral-Nasal Cannula, Pediatric	M2757A
CO_2 / O_2 Oral-Nasal Cannula, Adult	M2760A
CO_2 / O_2 Oral-Nasal Cannula, Pediatric	M2761A
Airway Adapters	
Airway Adapter Set, ET > 4.0 mm	M2768A
Airway Adapter Set H, ET > 4.0 mm	M2772A
Airway Adapter Set H, ET =< 4.0 mm	M2773A
Straight Sample Lines	
Straight Sample Line	M2776A
Straight Sample Line H	M2777A

Predictive Temperature Accessories

Temperature Probes and Disposable Covers	Part No.	Welch Allyn Part No.
Oral probe with probe well (holder), 2.7m cable (9ft)	989803143381	02895-000
Rectal probe with probe well (holder), 2.7 m cable (9ft)	989803143391	02895-100
Disposable probe covers: 1,000 (40 boxes, 25 per box)	M4823A	05031-101

Philips Healthcare is part of
Royal Philips Electronics

Interested?

Would you like to know more about our imaginative products? Please do not hesitate to contact us. We would be glad to hear from you.

On the web

www.philips.com/healthcare

Via e-mail

healthcare@philips.com

By fax

+31 40 27 64 887

By mail

Philips Healthcare
Global Information Center
P.O Box 1286
5602 BG Eindhoven
The Netherlands

By phone

Asia
Tel: +852 2821 5888

Europe, Middle East, Africa
Tel: +49 7031 463 2254

Latin America
Tel: +55 11 2125 0764

North America
Tel: +1 425 481 7000
800 285 5585 (toll free, US only)

CE 0366

M8105A complies with the requirements of the Council Directive 93/42/EEC of 14 June 1993 (Medical Device Directive).

Printed in The Netherlands.
4522 962 32371 MAR 2008