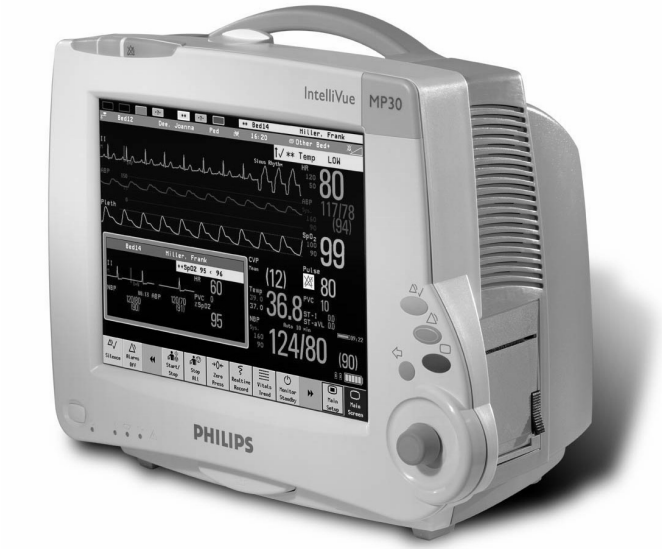
IntelliVue Patient Monitor
MP20/MP20 *Junior*/ MP30



The MP20/MP20 *Junior*/MP30 portable patient monitors are compact in size, ergonomic, and modular in design. They share a common user interface and technological platform with the Philips IntelliVue MP40 and MP50 patient monitors.

The monitors can be connected to Philips measurement servers and server extensions to extend their functionality with plug-and-play convenience.

The monitors are highly customizable. For the MP20/MP30 models, dedicated configurations are available for the anesthesia, critical and cardiac, and neonatal care environments. For the MP20 *Junior* dedicated configurations for the critical and neonatal care environments are available.

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

Measurement Features

- 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.
- The Hemodynamic Measurement Server Extension extends your measurement capability by adding a temperature and a pressure and an additional pressure **or** temperature measurement plus optional cardiac output (not MP20 *Junior)*.
- FAST SpO_2 for accurate performance even with low perfusion.
- The monitor can operate using battery power for up to five hours, to let you safely and easily monitor patients during in-hospital transfer.

PHILIPS

Usability Features

- Intuitive user interface.
- Simple menu hierarchy gives fast access to all basic monitoring tasks.
- Patient data management with tabular and graphic trends.
- Ventilation, hemodynamic, and oxygenation calculations.
- 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[1] .
- Bed-to-bed overview provides clinicians with an overview of all the patient beds in their care[1].
- Choice of input devices: touchscreen (MP30 only), navigation point, mouse, trackball, remote SpeedPoint or keyboard.
- 10.4" TFT flat panel display with SVGA resolution, wide viewing angle, large numerics, permanently visible alarm limits, and up to 4 real-time waves (3 waves for MP20 *Junior)*.

Intended Use

The monitors are intended to be used for monitoring, recording, and alarming of multiple physiological parameters of adults, pediatrics, and neonates in health care facilities. The devices are to be used by trained health care professionals.

The monitors are intended for use in health care facilities and also for use in transport situations within the hospital setting.

The monitors are for single patient use only. They are not intended for home use. Rx only: U.S. Federal Law restricts this device to use by or on the order of a physician. Not a therapeutic device.

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

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).

Modularity

The monitor’s functionality can be extended by connecting Philips multi-measurement server and measurement server extensions. It is available as a standalone or networked solution (not MP20 *Junior)*.

Upgradability

The MP20/MP30 monitors’ modular design 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.[1]

Main Components

Display

The monitors have color LCD TFT displays with a wide viewing angle, providing high resolution waveform and data presentation.

The display, processing unit, 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.

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

Touchscreen Operation

The MP30 monitor is supplied with a touchscreen display with a resistive touch surface.

Input Devices

Supported input devices include the navigation point and PS/2 compatible off-the-shelf computer accessories such as mouse or trackball[1].

1.Not MP20 *Junior*

NavigationPoint

The integrated navigation point is the primary input device for the MP20 and MP20 *Junior* and supports the touchscreen for MP30. Its dial can be rotated to enable navigation across the monitor screen. A tactile resistance at every step gives the user control over cursor movement.

The navigation point has four hardkeys:

Integrated Navigation Point

	*Silence key* to acknowledge all active alarms or switch alarm indicators on or off
	*Alarms key* to pause alarm indicators or switch alarm indicators on or off
	*Back key* to take the user back from a sub menu to a main menu
	*Main Screen key* to take the user from any window to the main screen

Mouse

Any specified PS/2 mouse or trackball may be used for data entry.[1]

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.

Multi-Measurement Server (MMS)

MMS with measurement extension

The M3001A Multi-Measurement Server (MMS) can be connected without cables to the rear of the MP20/30. It sends measurement waves and numerics to the monitor screen and generates alarms and INOPs. Up to eight hours of patient trends are stored in the MMS, as well as patient demographic details.

The MMS provides measurement data for Electrocardiogram (ECG)/Arrhythmia, Respiration, Oxygen Saturation of Arterial Blood (SpO_2), Non-Invasive Blood Pressure (NBP), and Invasive Pressure or Temperature. It features 12-lead ECG capability, multi-lead arrhythmia, and 12-lead ST analysis.

Measurement Server Extensions

A Measurement Server Extension can optionally be slotted onto the Multi-Measurement Server to add:

M3016A: integrated mainstream CO_2 (optional) and Invasive Blood Pressure or Temperature.

M3015A: Microstream® CO_2[2], and Invasive Blood Pressure/Temperature (optional).

M3012A: Temperature and Invasive Blood Pressure and an additional Invasive Blood Pressure or Temperature measurement, optionally with Cardiac Output and Continuous Cardiac Output.[1]

1.Not MP20 *Junior*

2.Microstream is a registered trademark of Oridion Systems Ltd.

M3012A hemodynamic measurement server extension

Remote Alarm Device[1]

The Remote Alarm Device can be connected to an external device interface connection on the monitor and mounted in a conspicuous position to improve the visibility of alarm signals generated by the monitor.

Remote Alarm Device

The device has three optical alarm indicators, an integrated speaker to transmit audible alarm signals and an On/Standby key to remotely switch the monitor on or put it into standby.

Remote SpeedPoint[1]

The remote SpeedPoint can also be connected to an external device interface connection on the monitor. It combines joystick with dial control and enables full two-dimensional navigation across the monitor screen. A tactile resistance at every step gives the user control over cursor movement.

Mounting

The mounting options available enable flexible, space saving placement of the monitors for an ergonomic work space.

1.Not MP20 *Junior*

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.
- **12-lead ECG** data can be measured, using either the EASI placement method with five standard electrodes (not MP20 *Junior)* or conventional electrode placement with 10 electrodes.[2] 12 realtime ECG waveforms can be displayed simultaneously.
- **FAST-SpO2**, using Fourier Artifact Suppression Technology, performs accurately even in cases with low perfusion.
- Choice of Microstream and mainstream **CO_2 monitoring** for high quality measurements with intubated and non-intubated patients.
- A choice of **cardiac output** measurements[1] using the right-heart thermodilution method and **continuous cardiac output** measurements with advanced hemodynamic assessment provided using the PiCCO^{TM} method without a pulmonary catheter.[3]
- **Clinical calculations** enable stored and manually entered data to be used to perform hemodynamic, ventilation and oxygenation calculations. Calculated data is displayed in both indexed and non-indexed format.
- The optional **Drug Calculator**[1] helps you to manage intravenous (IV) drug infusions by calculating drug dose, rate, amount, volume, concentration, and standardized rate.

2.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.

3.PiCCO^{TM} is a trademark of Pulsion Medical Systems AG.

Anesthesia Features

- The **Essential Gas Module** (EGM) measures and displays waves and numerics for 3 respiratory gases and one agent.
- **Screens** provide flexible viewing of patient information during different procedures or phases of an anesthesia case.

Neonatal Monitoring Features[1]

- The optional **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.
- **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 patientdata 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.

Transport Features

- The monitors' portable design means they can be used for in-hospital transport: a monitor, combined with an MMS and battery (optional for MP20 and MP30), weighs less than 6 kg.
- The monitors can operate using battery power for up to five hours, to let you safely and easily monitor patients during procedures or in-hospital transfer.
- The transition from bedside monitoring to transport is smooth and easy, with no need to disconnect patient cables or adjust any measurement or monitor settings.
- The monitor's network capability means that it is ready for use as an integrated part of the hospital system.[1]
- 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.[1]
- Patients can be transferred by disconnecting the MMS from a monitor, and then reconnecting it at a new monitor. Patient demographics are stored in the MMS, so they do not have to be re-entered at the new monitor.

Patient Data Documentation

- An extensive range of **Patient Reports** can be printed:
  – Event Review and Episode Reports
  – OxyCRG Reports[1]
  – 12-lead ECG Reports
  – Alarm Limit Reports
  – Vital Signs
  – Graphic Trends
  – Cardiac Output Reports[1]
  – Wedge Procedure Reports[1]
  – Calculations Reports[1]
  – Drug Calculator Reports[1]
  – 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.

1.Not MP20 *Junior*

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
- the Remote Alarm Device[1] signals the alarm visibly and audibly.

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[1] has active open and 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 Audio off/Pause Alarms function (equivalent to Silence/Suspend with previous monitor generations) allows the user to switch off alarm tones with one touch or click while retaining visual alarm messages.

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

  Alarm strip recordings are available on the built-in recorder or on a centrally-connected recorder[1].

  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.

1.Not MP20 *Junior*

Profiles

Profiles are predefined configuration settings for Screens, measurement settings, and monitor properties. 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 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.

Networking Capabilities[1]

The monitor can operate as part of a wired or wireless hospital network system, using the Philips IntelliVue Clinical Network interface.

Other Bed Overview Capability[1]

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.

Clinical Calculation Set

The clinical calculation set consists of: Hemodynamic, Oxygenation, and Ventilation calculations.

Hemodynamic Calculations:

- Cardiac Index (C.I.) and Continuous Cardiac Index (C.C.I.)
- Stroke Volume (SV)
- Stroke Index (SI)
- Systemic Vascular Resistance (SVR)
- Systemic Vascular Resistance Index (SVRI)
- Pulmonary Vascular Resistance (PVR)
- Pulmonary Vascular Resistance Index (PVRI)
- Left Cardiac Work (LCW)
- Left Cardiac Work Index (LCWI)
- Left Ventricular Stroke Work (LVSW)
- Left Ventricular Stroke Work Index (LVSWI)
- Right Cardiac Work (RCW)
- Right Cardiac Work Index (RCWI)
- Right Ventricular Stroke Work (RVSW)

- Right Ventricular Stroke Work Index (RVSWI)
- Extra Vascular Lung Water Index (EVLWI)[1]
- Intrathoracic Blood Volume Index (ITBVI)
- Global End Diastolic Volume Index (GEDVI)

Oxygenation Calculations:

- Arterial Oxygen Content (CaO_2)
- Venous Oxygen Content (CvO_2)
- Arteriovenous Oxygen Content ($avDO_2$)
- Oxygen Availability Index (O_2AVI)
- Oxygen Consumption (VO_2)
- Oxygen Consumption Index (VO_2I)
- Oxygen Extraction Ratio (O_2ER)
- Alveolar-Arterial Oxygen Difference ($AaDO_2$)
- Percent Arteriovenous Shunt (Qs/Qt)

Ventilation Calculations:

- Minute Volume (MINVOL)
- Compliance (COMP)
- Dead Space (Vd)
- Dead Space/Tidal Volume Ratio (Vd/TV)
- Alveolar Ventilation (ALVENT)

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:

- a Multi-Measurement Server and a Measurement Server Extension
- an Information Center (for example M3150B)[2]
- a PC[2].

Network Interface[2]

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

Wireless Network (optional)[2]

The monitor can function within a wireless infrastructure based on a Frequency Hopping Spread Spectrum (FHSS) radio in the 2.4 GHz band (ISM). Additional components are required to complete the system. Please refer to the M3185A IntelliVue Clinical Network Technical Data Sheet for further information.

1.Not available in the US.
2.Not MP20 *Junior*

Further Optional Connection Interfaces[1]

Any two of the following optional interfaces can be installed in the monitor.

Parallel Printer Interface

The Parallel Printer Output port can be used to connect any off-the-shelf printer that complies with the specifications.

Flexible Nurse Call Relay

The Flexible Nurse Call Relay board provides a means for alarms generated on the monitor to be signalled on an external device such as a nurse call system, a beeper or a light. It provides three general alarm relays and one power fail alarm. The external device is connected to the alarm relay and alarms are triggered by criteria defined by the user. It has active open and closed contacts and a user-definable delay time.

MIB-ready/RS-232 Interface

MIB, Medical Information Bus (IEEE P1073), is a standard for interfacing medical devices, allowing full integration of these devices. The monitor has a serial MIB/RS-232 interface board with two fully-isolated MIB ports. Both ports can be independently 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)

Input Device Interface (2 PS/2 Interfaces)

This interface provides two PS/2 ports to enable the monitor to be connected to off-the-shelf input devices.

Remote Device Interface

This interface is required to connect a Remote Alarm Device and one Remote SpeedPoint to the monitor.

Monitor Specifications

See the individual Data Sheets for measurement server and measurement server extension specifications.

Safety Specifications

The monitor, together with the Multi-Measurement Server (M3001A), and all measurement server extensions, comply 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; UL 2601.1:1994; CAN/CSA C22.2#601.1-M90; JIS T 1001-1992; IEC 60601-1-1:2000; EN 60601-1-1:2001; IEC 60601-1-2:2001; EN 60601-1-2:2001.

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.

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

Physical Specifications

Physical Specifications		
Product	**Max Weight**	**W x H x D**
M8001A IntelliVue MP20/ M8001A IntelliVue MP20 *Junior*/M8002A IntelliVue MP30 (including M3001A and battery, without options)	< 6 kg (13.2 lb)	< 345 x 275 x 230 mm (13.6 x 10.8 x 9 in)
M3001A Multi-Measurement Server (MMS)	< 650g < 1.4lb	188 x 96.5 x 51.5 mm (7.4 x 3.8 x 2 in)
M3015A Measurement Server Extension - Microstream CO_2	< 550 g < 1.21 lb	188.0 x 96.5 x 38.5 mm (7.4 x 3.8 x 1.5 in)

1.Not MP20 *Junior*

Physical Specifications		
Product	**Max Weight**	**W x H x D**
M3016A Measurement Server Extension - Mainstream CO_2	< 450 g < 0.99 lb	188.0 x 96.5 x 38.5mm (7.4 x 3.8 x 1.5 in)
M3012A Hemodynamic Measurement Server Extension	< 550 g	98 x 40 x 190 mm
M8025A Remote Alarm Device	< 300 g < 0.7 lb	62 x 125 x 63 mm (2.4 x 5 x 2.5 in)
M8026A Remote SpeedPoint	< 400 g < 0.9 lb	103 x 139 x 63 mm (4 x 5.5 x 2.5 in)

Environmental Specifications

Environmental Specifications: Monitors		
Item	**Condition**	**Range**
Temperature Range	Operating	0 to 40 deg. C (32 to 100 deg. F)
	Non-operating (without battery)	-20 to 60 ^{o}C (-4 to 140 ^{o}F)
Humidity Range	Operating	20% to 85% Relative Humidity (RH) (non condensing)
	Non-operating	5% to 85% Relative Humidity (RH)
Altitude Range	Operating	0 m to 3000 m (10000 ft)
	Non-operating	0 m to 12000 m (40000 ft)
Battery storage		-20 to 50 deg. C (-4 to 122 deg. F)

Performance Specifications

Monitor Performance Specifications		
Power Specifications	Power consumption	< 100 W
	Line Voltage	100 to 240 V ~
	Current	1.0 to 1.8 A
	Frequency	50/60 Hz
SVGA Display 10.4 inch	Resolution	800 x 600
	Refresh rate	60 Hz
	Useful screen	211.2 x 158.4 mm
	Pixel size	0.264 x 0.264 mm
Sweep Speeds	6.25, 12.5, 25 and 50 mm/s with ±5% accuracy (guaranteed only for integrated displays)	
Indicators	Alarms Off	red LED
	Alarms	red/yellow/cyan LED
	On/Standby	green LED
	AC Power	green LED
	Battery	red-yellow-green LED
	Error	red LED
Sounds	Audible feedback for user input. Prompt tone. Two different QRS tones, SpO_2 modulation tone. Four different alarm sounds	
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.		
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

One or two batteries 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, with hot swap capability)
- Weight: 480g per battery
- Status LEDs indicate charge status of batteries

Battery Operating Time:

- With basic monitoring configuration (automatic brightness reduction, MMS in use, NBP every 15 minutes):5 hours (with two batteries) or 2.5 hours (with one battery)
- With extended monitoring configuration (maximum brightness, MMS and CO_2 Measurement Server Extension in use, NBP every 15 minutes, recorder every 15 minutes): 4 hours (with two batteries) or 2 hours (with one battery

Battery Charge Time:

- when monitor is switched off: about 4 hours when monitor is switched on and fully functional: 5 to 12 hours depending on configuration.

Interface Specifications

Monitor Interface Specifications		
Network	Standard	IEEE 802.3 10-Base-T
	Connector	RJ45 (8 pin)
	Isolation	1.5 kV
Parallel Printer Port	Standard	IEEE 1284-I
	Connector	DB-25
	Isolation	1.5 kV
Dual PS/2 Inputs	Output Voltage	5V ± 10 %
	Output Current	250mA (comb. max) to connected PS/2 devices
Dual MIB/ RS232	Standard	IEEE 1073-3.2-2000
	Connectors	RJ45 (8 pin)
	Mode	Software-controllable BCC (RxD/TxD cross over) or DCC (RxD/TxD straight through)
	Power	5V +/- 5%, 100mA (max.)
	Isolation	1.5kV
ECG Output/Marker Input (1/4" stereo phone jack with tip, ring, sleeve)		

Monitor Interface Specifications		
General	Connector	1/4" phone each with tip, ring, sleeve
	Isolation	500 V
ECG Output (ring, tip)	Signal Gain	320 to 3200
	Full Scale on Display	$3.2V_{pp}$
	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
Flexible Nurse Call Relay	Connector	20 pin MDR (Mini D-Ribbon), active open and closed contacts 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)

Compatible Devices		
Printers		PCL5 capability required HP Laserjet 1200 (monochrome) HP Laserjet 2100 (monochrome) HP DeskJet 2500 C+ (color)

Ordering Information

Ordering information for the M8001A/M8002A patient monitor is given here. See the individual Data Sheets for detailed ordering information for the measurement servers and measurement server extensions.

For MP20 *Junior* order **M8001A option M20** plus additional options as required from tables below.

Basic Functionality	MP20/ MP30 (M8001A/ M8002A)	MP20 *Junior* (M8001A #M20)
Order one Hxx option		
General/ICU Configuration	H10	H10
Neonatal Configuration	H20	H20
OR/Anesthesia Configuration[a]	H30	--
Cardiac Configuration	H40	--
Order for MP20/30 one Axx option		
3 Realtime Wave Segments	A03	--
4 Realtime Wave Segments	A04	--
6 Realtime Wave Segments[b]	A06	--

a. If EGM is required, H30 must be ordered. H30 not available with MP20 *Junior*.

b. A06 not available in the USA.

Application Options

Application Options	M8001A		M8002A
	MP20	MP20 *Junior*	MP30
Cardiac Applications			
Basic Arrhythmia	Incl.	Incl.	Included
Full Arrhythmia	C01	--	Included
Neonatal Applications			
OxyCRG	C08	--	C08
Neonatal Event Surveillance (includes OxyCRG)	C04	--	C04
Clinical Applications			
Drug Calculator	C05	--	C05
Advanced Hemodynamic Capability	C30	--	C30
Full Customization	--	--	C20

Measurement Options

Measurements		Option
Measurement Servers		
Multi-Measurement Server M3001A, for Resp, ECG (inc. EASI), NBP, SpO2, and Pressure/Temperature. See the MMS Data Sheet for details.		
Add Press/Temp		C06
Add Conventional 12 lead ECG		C12
Add Press/Temp and Conventional 12 lead ECG		C18
Microstream CO2 Extension M3015A		
Add Press/Temp		C06
Mainstream CO2 Extension (with Press/Temp)	**M3016A**	A01
Without CO_2		A02
Hemodynamic Measurement Server Extension (with Pressure, Temperature, and Pressure/ Temperature)[a]	**M3012A**	
Add Cardiac Output		C05
Add Cardiac Output and Continuous Cardiac Output		C10

a.Not MP20 *Junior*

Hardware Options

Hardware Add-Ons	M8001A/ M8002A
Built-in recorder	E05
Battery operation (except MP20 *Junior*, has battery capability as standard)	E25
1x High Power Lithium-Ion battery[a]	E24
2x High Power Lithium-Ion batteries[a]	E26
Quick Release Mount	E22

a.One battery is standard with MP20 Junior, for a second battery order M4605A.

Interface Options

Interfaces (not available for MP20 *Junior*)	M8001A/ M8002A
Networking software (included in M8002A)	C15
RS232 Interface (MIB-ready), 2 ports[a]	J13
Parallel Printer Interface[a]	J14
Wireless network adapter kit	J20
2 PS/2 Interfaces [a]	J22

Interfaces (not available for MP20 *Junior*)	M8001A/ M8002A
Remote SpeedPoint Interface[ab]	J23
Flexible Nurse Call Relay[a]	J30
Advanced interfacing capability: SVGA Video, Nurse Call Relay and Wireless Network Kit	J40
Networking interface card (MP20 only, already included in MP30)	J42

a. A maximum of 2 of these options can be selected.

b. Required for Remote Alarm Device and for remote input devices (e.g. Remote SpeedPoint, keyboard, mouse).

Related Products

Related Products		Model Number
Input Devices[a]		M8024A
	Slimline keyboard with protective cover	M8024A #A01
	Mouse; wired	M8024A #B01
	Trackball; wired	M8024A #C01
	Trackball; wireless	M8024A #C02
	off table track mouse wired	M8024A #C03
Remote Alarm Device[a]		M8025A
	Connection cables:	1.5 m #HF2 3 m #HF3 10 m #HF6 15 m #HF7 25 m #HF9
Remote SpeedPoint Device[a]		M8026A
	Connection cables:	1.5 m #HF2 3 m #HF3 10 m #HF6 15 m #HF7 25 m #HF9
Support Tool		M3086A

a.Not MP20 *Junior*

Mounting Information

For mounting hardware, contact your local Philips sales representative. For GCX mounting hardware information, see www.gcx.com/philips.

Support Tool M3086A

A02 Support Tool CD-ROM

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

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
Interface Cables		
Length	Description[b]	Product/.Option
1.5 m	Monitor to Remote Device	M8022A #HF2
3.0 m	Monitor to Remote Device	M8022A #HF3
10.0 m	Monitor to Remote Device	M8022A #HF6
15.0 m	Monitor to Remote Device	M8022A #HF7
25.0 m	Monitor to Remote Device	M8022A #HF9
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
Nurse Call Relay Cable		
3.0 m	standard (backward compatible) nurse paging relay cable[c]	M8022A #NC3
10.0 m	cable	M8022A #NC6
ECG Out Cable		
3.0 m	standard ECG out cable[d]	M8022A #SY3
Wireless LAN Adapter Cable		
0.3 m	Y-Piece, DC supply plus LAN	M8022A #WLO

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

b. Both ends terminated with straight MDR connectors.

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

d. Both ends terminated with 1/4” phone plug.

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M8001A and M8002A comply with the requirements of the Council Directive 93/42/EEC of 14 June 1993 (Medical Device Directive).

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