

# Avalon FM20

## Antepartum Fetal / Maternal Monitor



The Philips Avalon FM20 fetal monitor offers a reliable, cost-effective, high-performance solution for external fetal monitoring needs in doctors' practices, clinics and hospitals, from pre-natal check-ups to antepartum monitoring of high-risk pregnancies.

Incorporating innovative technology, including advanced transducers, a touchscreen interface, and triplets monitoring<sup>1</sup>, the Avalon FM20 sets new standards for convenience, reliable performance, and ease of use.

### Measurements

The Avalon FM20 lets you monitor and document:

- Up to three<sup>1</sup> fetal heart rates externally using ultrasound
- Uterine activity using an external Toco transducer
- Maternal heart rate via ECG electrodes, and noninvasive blood pressure (optional)

1. Triplets monitoring is not currently available in the USA.

### Features

- Touchscreen for intuitive, easy operation
- Tilt and fold 6.5-inch TFT color display with a wide viewing angle and large numerics
- Built-in 6-inch recorder for automatic printing of fetal and maternal parameters on the trace
- Fetal Movement Profile (FMP) detects and automatically records gross fetal body movements
- Intelligent transducers are waterproof, light, comfortable to wear and easy to clean
- Automatic channel management lets you connect any fetal transducer, patient module or remote event marker to any fetal sensor socket
- Cross-Channel Verification between *all* fetal and maternal heart rates
- The blue transducer Finder LED lets you identify at a glance which transducer is monitoring which measurement
- Transmission of fetal and maternal parameters to an obstetrical surveillance system
- Network connectivity to an OB TraceVue<sup>2</sup> system via LAN connection using the optional system interface, where OB TraceVue controls all patient admit/discharge events
- Internal backup memory allows recovery of up to one hour of trace data, either to paper or to an OB TraceVue<sup>2</sup> system over a LAN connection
- Cordless monitoring using the award-winning Avalon CTS Cordless Fetal Transducer System<sup>3</sup>
- Compact and light, with built-in carrying handle, and stand for angled stance on any flat surface
- Comprehensive patient data presentation, including at-a-glance patient identification, and the choice to add user-configurable notes<sup>4</sup>
- Automatic screen layouts optimize size and presentation of measurements

2. OB TraceVue Revision E.00.00 or later.

3. Requires Avalon CTS interface cable M2731-60001 (see Avalon CTS data sheet for details), and monitor software revision D.00.00 or higher.

4. Using standard Roman-8 character sets.

## Description of Main Components

### TFT Color Display

The monitor has an integrated, tiltable color TFT display, with a wide viewing angle, providing high resolution data presentation. Fetal and maternal measurements are displayed as large, easy-to-read numerics.

Information such as patient identification (including the bed label when connected to a surveillance system such as OB TraceVue), date and time, alarm information, icons for recorder status, and prompt and error messages are also clearly shown.

### Touchscreen User Interface



The monitor is operated using the touchscreen. All user functions (apart from the On/Off switch) are controlled directly from the screen, and the intuitive, color, graphical user interface not only makes it quick and easy to learn and use, but the lack of mechanical controls also makes cleaning the Avalon fetal monitor much quicker and simpler.

A number of SmartKeys at the bottom of the main screen allow fast access to functions, for starting a recording, or resetting a Toco baseline, for instance.

Heart rate and alarm volume adjustment, with an indication of the current setting, are always available at the top of the screen.

### Integrated Recorder

The Avalon fetal monitor has an integrated, high resolution thermal array recorder, with paper-out/-end detection.

Traces are recorded at either 1, 2 or 3 cm/min.

Continuous traces are made for:

- Fetal Heart Rate(s)
- Maternal Heart Rate
- Fetal Movement
- Uterine Activity

The monitor prints the time, the date, trace identification symbols, the monitoring mode and the paper speed when first switched on, every ten minutes after, and whenever the monitoring modes change.

Maternal heart rate is printed every 5 minutes. In the case of maternal noninvasive blood pressure measurement, the annotation is made at the end of the measurement.

Depending on the geography, there are two possible paper scales:

- FHR Scale:
  - Red paper: 30 to 240 bpm @ 30 bpm/cm
  - Green paper: 50 to 210 bpm @ 20 bpm/cm
- Labor Scale:
  - 0 to 100 units @ 25 units/cm

### Alarms

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

- An alarm tone sounds
- An alarm message is shown on the screen
- The numeric of the alarming measurement flashes on the screen

Alarm categories:

- **Physiological Alarms** for fetal and maternal parameters (to indicate vital sign alarm limit violations, for instance)
- **Technical Alarms (INOPS)** are triggered by signal quality problems, equipment malfunction or equipment disconnect.

Alarm modes:

- **INOP only:** only INOPs are enabled, with audible and visual indication active. This is the default.
- **All:** patient alarms and INOPs are enabled, with audible and visual indicators active.

Alarm suspension:

- Alarms Off/Pause Alarms function
- Alarm pause period: indefinite, or one, two, or three minutes.

Alarm latching/non-latching:

- Visual
- Audible
- Visual and audible

### Interfaces

#### LAN/RS-232 System Interface

The monitor has an optional LAN/RS-232 interface board with two fully-isolated ports:

- The LAN connection is for connecting the monitor to an OB TraceVue obstetrical information and surveillance system on a network, or to a PC for configuration or upgrade using the Support Tool
- The RS232 connection can be used for connecting the monitor to an obstetrical information and surveillance system, such as OB TraceVue

## Input Device Interface (Dual PS/2 Interface)

This optional interface provides two PS/2 ports to enable the monitor to be connected to off-the-shelf, “plug-and-play” input devices:

- **Mouse:** any specified PS/2 mouse or trackball may be used for navigation and data entry.
- **Computer keyboard:** a PS/2 computer keyboard can be used for data entry instead of the on-screen pop-up keyboard.

## Service Features

- The Support Tool helps technical personnel to
  - carry out configuration, upgrades and troubleshooting on an individual monitor.
  - share configuration settings between monitors.
  - back up the monitor settings.
- The Service Mode is password-protected and 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.
- The Demo Mode is password-protected and is intended for training and educational purposes.

## Related Products



Monitors with software revision D.00.00 (or higher) are compatible with the Avalon CTS Cordless Fetal Transducer System (M2720A), allowing expectant mothers to be continuously monitored without wires, whether in the bath or shower, in the bed, or while ambulating. Monitors with earlier software revisions can be upgraded to the latest software version (see “Upgrade Options” on page 11). Refer to the Avalon CTS Data Sheet for the required Avalon CTS interface cable (M2731-60001) and further information.

## Standards Compliance

US Federal Law restricts this device to sale by or on the order of a physician.

The monitor is in conformity with the essential requirements of the European Medical Devices Directive 93/42/EEC and the following major international standards:

## Safety, Performance

- EN 60601-1:1990+A1:1993+A2:1995/IEC 60601-1:1988+A1:1991+A2:1995
- EN 60601-1-1:2001/IEC 60601-1-1:2000
- EN/IEC 60601-2-27:1994
- EN 60601-2-30:2000/IEC 60601-2-30:1999
- EN/IEC 60601-2-37:2001+A1:2004
- EN 60601-2-49:2001/IEC 60601-2-49:2001
- UL 60601-1:2003
- CAN/CSA C22.2#601.1-M90
- AS/NZS 3200.1.0-1998

The possibility of hazards arising from hardware and software errors was minimized in compliance with ISO 14971:2000+A1:2003, EN60601-1-4:1996+A1:1999 and IEC 60601-1-4:1996+A1:1999.

Alarm sounds are compliant with the draft ISO/IEC 9703-2 Standard.

## Electromagnetic Compatibility

- EN/IEC 60601-1-2:2001+A1:2004
- ICES-001:1988

The Avalon fetal monitor is classified as electromagnetic emissions Class B, except whenever used with the IUP/ECG patient module M2738A, when it is classified as Class A.

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

## Environmental Specifications

The monitor may not meet the given performance specifications if stored and used outside the specified temperature and humidity ranges.

FM20 Monitor		
Temperature Range	Operating	0°C to 45°C (32°F to 113°F)
	Storage	-20°C to 60°C (-4°F to 140°F)
Humidity Range	Operating	<95% relative humidity @ 40°C/104°F
	Storage	<90% relative humidity @ 60°C/140°F
Altitude Range	Operating	-500 to 3000 m/-1640 to 9840 ft.
	Storage	-500 to 13100 m/-1640 to 43000 ft.

Transducers (M2734A/M2736A/M2738A)		
Temperature Range	Operating	0°C to 40°C (32°F to 104°F)
	Storage	-20°C to 60°C (-4°F to 140°F)
Humidity Range	Operating	<95% relative humidity @ 40°C/104°F
	Storage	<90% relative humidity @ 60°C/140°F
Altitude Range	Operating	-500 to 3000 m/-1640 to 9840 ft.
	Storage	-500 to 13100 m/-1640 to 43000 ft.

## Physical Specifications

FM20 Monitor		
Power	Supply Voltages	100 VAC to 240 VAC ± 10%
	Supply Frequency Range	50 Hz to 60 Hz
	Power consumption (maximum)	60 VA
Dimensions and Weight	Size mm/(in) ±1%: width x height x depth (without options)	286 x 133 x 335 (11.3 x 5.2 x 13.2 in)
	Weight	< 5.1 kg/11.2 lbs
Degree of Protection Against Electrical Shock	Type CF	
Electrical Class	Class II equipment	
Mode of Operation	Continuous operation	
Startup Time	Time taken from switching on the monitor to seeing the first parameter labels	< 30 seconds

Transducers (M2734A/M2736A)			
Shock Resistance	Withstands ten 1m drops to concrete surface with possible cosmetic damage only		
Water Ingress Protection Code	M2734/35/36A	IP 68 (immersion up to 1 m water depth for 5 hours)	
	M2738A	IP 67 (immersion up to 0.5 m water depth for 30 minutes)	
Dimensions and Weight	M2734/35/36A	Size (diameter)	83 mm/3.27 in
		Weight (without cable)	< 220 g/7.8 oz.
	M2738A	Maximum size mm/(in): width x height x depth	50 x 28 x 135 (2.0 x 1.1 x 5.3 in)
		Cable length	2.5 m
		Weight	< 150 g/5.3 oz.
Water Ingress Protection Code	IP 68 (immersion up to 1m water depth of for 5 hours)		
Degree of Protection Against Electrical Shock	Type CF		

## Performance Specifications

Complies with EN/IEC EN 60601-2-37:2001+A1:2004. ECG measurement follows EN/IEC 60601-2-27:1994.

### Fetal / Maternal

Fetal/Maternal Performance Specifications				
<b>Ultrasound</b>	Measurement Method		Ultrasound Pulsed Doppler	
	Measurement Range	US	50 to 240 bpm	
	Resolution	Display	1 bpm	
		Printer	1/4 bpm	
	Jitter @ 200 bpm		≤ 3 bpm	
	Display Update Rate		1 / second	
	US Intensity	Average output power		$P = (4.3 \pm 0.4) \text{ mW}$
		Peak-negative acoustic pressure		$p_{-} = (33.9 \pm 3.6) \text{ kPa}$
		Output beam intensity ( $I_{ob}$ ) (= spatial average - temporal average intensity)		$I_{sata} = (2.38 \pm 0.75) \text{ mW/cm}^2$
		Spatial-peak temporal average intensity		$I_{spta} = (10.3 \pm 2.2) \text{ mW/cm}^2$
		Effective radiating area @ -6 dB		1.81 cm <sup>2</sup>
	Signal Quality Indication	Poor	Empty	
		Acceptable	Two-thirds full	
		Good	Full	
	Beat to Beat Change (max.) for Ultrasound		28 bpm	
	US Frequency		1 MHz ± 100 Hz	
	US Signal range		3.5 μVpp to 350 μVpp @ 200 Hz	
	US Burst	Repetition Rate	3.0 kHz	
Duration		≤ 100 μs		
US LF Frequency Passband @ -3dB		100 to 500 Hz ± 20%		
FMP Signal Range @ 33 Hz		200 μVpp to 40 mVpp		
FMP Frequency Passband @ -3dB		10 to 100 Hz		
<b>Toco</b>	Measurement Method		Strain Gauge Sensor Element	
	Sensitivity		1 unit = 2.5 g	
	Resolution	Display	1 unit	
		Printer	1/4 unit	
	Measurement Range		400 units	
	Signal Range		0 to 127 Units	
	Maximum Offset Range		-300 units	
	Baseline Setting		20 units	
	Update Rate	Display	1 / second	
		Printer	~4 / second	
Auto Offset Correction		3 seconds after connecting the transducer, the TOCO value is set to 20 units		
Auto Zero Adjust		TOCO value is set to zero following a negative measurement value for 5 seconds		
<b>Maternal Heart Rate</b>	Measurement Range		30 to 240 bpm	
	Resolution	Display	1 bpm	
		Recorder	1/4 bpm	
	Accuracy		± 1 bpm or 1%, whichever is greater	
	Filter Bandwidth		0.8 to 80 Hz	
	Inop Auxiliary Current (Leads Off Detection)		< 100 μA	
	Input Signal Range (derived from RA and LA electrodes)		150 μVpp to 6 mVpp	
	Defibrillator Protection		None	
ESU Protection		None		

Fetal Heart Rate (Ultrasound/DECG) Alarm Specifications			
<b>FHR Alarm Limits</b>	Range	Bradycardia (low limit)	60 to 200 bpm adjustable in 10 bpm steps Default: 110 bpm
		Tachycardia (high limit)	60 to 210 bpm adjustable in 10 bpm steps Default: 170 bpm
<b>FHR Alarm Delay</b>	Range	Bradycardia (low limit) Delay	10 to 300 seconds in steps of 10 s Default: 240 s
		Tachycardia (high limit) Delay	10 to 300 seconds in steps of 10 s Default: 300 s
		Signal Loss Delay	10 to 300 seconds in steps of 10 s

Maternal Heart Rate Alarm Specifications	Range	Adjustment
<b>MECG Alarm Limits</b>	High Range: 31 to 240 Default: 120 bpm	1 bpm steps (30 to 40 bpm) 5 bpm steps (40 to 240 bpm)
	Low Range: 30 to 235 Default: 50 bpm	
<b>Tachycardia</b>	Difference to high limit: 0 to 50 bpm Default: 20 bpm	5 bpm steps
	Clamping at: 150 to 240 bpm Default: 200 bpm	5 bpm steps
<b>Bradycardia</b>	Difference to low limit: 0 to 50 bpm Default: 20 bpm	5 bpm steps
	Clamping at: 30 to 100 bpm Default: 40 bpm	5 bpm steps

## Noninvasive Blood Pressure

**Measurement Validation:** In adult 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.

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

Noninvasive Blood Pressure Performance Specifications		
<b>Measurement Ranges</b>	<b>Systolic</b>	30 to 270 mmHg (4 to 36 kPa)
	<b>Diastolic</b>	10 to 245 mmHg (1.5 to 32 kPa)
	<b>Mean</b>	20 to 255 mmHg (2.5 to 34 kPa)
<b>Accuracy</b>		Max. Std. Deviation: 8 mmHg (1.1 kPa) Max. Mean Error: $\pm 5$ mmHg ( $\pm 0.7$ kPa)
<b>Pulse Rate</b>	<b>Range</b>	40 to 300 bpm
	<b>Accuracy</b> (average over noninvasive blood pressure measurement cycle)	40 to 100 bpm: $\pm 5$ bpm
		101 to 200 bpm: $\pm 5\%$ of reading 201 to 300 bpm: $\pm 10\%$ of reading
<b>Measurement Time</b>		Typical at HR > 60bpm Auto/manual: 30 seconds (adult) Maximum time: 180 seconds (adult)
<b>Cuff Inflation Time</b>		Typical for normal adult cuff: Less than 10 seconds
<b>Initial Cuff Inflation Pressure</b>		165 $\pm$ 15 mmHg

Noninvasive Blood Pressure Performance Specifications	
Auto Mode Repetition Times	1, 2, 2.5, 3, 5, 10, 15, 20, 30, 45, 60 or 120 minutes
Venipuncture Mode Inflation	
Inflation Pressure	20 to 120 mmHg (3 to 16 kPa)
Automatic deflation after	170 seconds

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)
Diastolic	Adult: 10 to 245 mmHg (1.5 to 32 kPa)	
Mean	Adult: 20 to 255 mmHg (2.5 to 34 kPa)	

Overpressure Settings	Adjustment
> 300 mmHg (40 kPa) > 2 sec	not user adjustable

## Recorder Specifications

Built-in Thermal Array Fetal Trace Recorder		
Mechanism	Thermal Array Recorder	
Paper & Printing	Type	Standard Z-fold paper
	Standard Speeds (real-time traces)	3 cm/min, 2 cm/min, 1 cm/min
	ECG Wave Recording (not real-time)	Emulated 25 mm/s Print speed is variable up to 20 mm/s and depends on the print load
	Paper Advance	Up to 20 mm/s
	Sensing	Optical Reflex Sensor for black page marks
Accuracy @ 3 cm/min, 2 cm/min, 1 cm/min	±5 mm/page	
Usable Print Width	128 mm	
Resolution	8 dots/mm (200 dpi)	
Time Delay to see trace on paper	<30s @ 1 cm/min	
Trace Separation Offset for FHR (Ultrasound and DECG)	Twin	FHR2 +20 bpm
	Triplet	FHR2 +20 bpm FHR3 -20 bpm

## Ordering Guide and Accessory Options

You can order the Avalon FM20 fetal monitor under the product number M2702A. To order, precede the required option number with M2702A (for example, M2702A #B71 adds the noninvasive blood pressure measurement). “K” options let you modify your order. Below you will find tables giving you a quick overview of the monitor’s standard capabilities, and what is available as options. Refer to “Standard Accessories Included” on page 9 for a list of items shipped as part of the standard configuration. Start-up quantities of fetal supplies are available in five convenient kits.

All features listed as options can be added at a later time (see “Upgrade Options” on page 11).

## Standard Measurements

Type	Description	Recommended Accessory Option (See "Accessory Options" on page 8)
Standard Fetal Measurements:	Fetal Heart Rate (FHR) via ultrasound	-
	Twins monitoring via ultrasound	<b>K02</b>
	Fetal Movement Profile* (FMP)	-
	Toco	-
Standard Maternal Measurements:	Maternal Heart Rate via MECC electrodes	<b>K03</b>

\*We recommend to switch off FMP during labor.

\*\*You can measure MECC using the "Toco\*" transducer if you are not already using it to measure DECG. Order M1363A separately (see "Maternal Heart Rate Accessories" on page 10).

## Optional Measurements

Type	Description	Required Option	Recommended Accessory Option(s) (See "Accessory Options" on page 8)
Optional Fetal Measurements:	Triple FHR via ultrasound (Not currently available in USA)	<b>C73</b>	<b>K02</b>
Optional Maternal Measurements:	Noninvasive Blood Pressure (NIBP) with Pulse Rate	<b>B71</b>	<b>K31</b>

## Optional Interfaces

Description	Required Option	Recommended Accessory Option
Dual PS/2 Interface for keyboard and mouse connection	<b>J22</b>	<b>M8024A #A01</b> (See "Input Devices" on page 10)
System Interface (1 x RS232 port and 1 x LAN port)	<b>J70</b>	-

## Accessory Options

Option Number	Description
<b>K01</b>	The Avalon FM20 comes with one ultrasound transducer. To add a second M2736A ultrasound transducer, order option <b>K01</b> .
<b>K02</b>	The Avalon FM20 comes with one ultrasound transducer. To add two additional M2736A ultrasound transducers, order option <b>K02</b> (only in conjunction with C73).
<b>K03</b>	Order ECG Patient Module M2738A (includes MECC adapter cable M1363A), using option <b>K03</b> .
<b>K04</b>	Order the Remote Event Marker (9898 031 43411) using option <b>K04</b> .
<b>K31</b>	Order Antimicrobial NIBP Cuff assortment kit with 3 m (10 ft) connection tubing (M1599B) using option <b>K31</b> : small adult - M4554A; adult - M4555A; large adult - M4557A

## Paper Scaling Options

Option Number	Description
<b>P01</b>	50-210 bpm paper scaling
<b>P02</b>	30-240 bpm paper scaling

## Fetal Supplies Starter Kits

Kit Number	Description	Contents
<b>862214</b>	Standard Antepartum Kit (North America)	Paper (30-240), belts, gel, belts buttons, belt clips
<b>862215</b>	Standard Antepartum Kit (Europe, Latin America, Asia)	Paper (50-210), belts, gel, belts buttons, belt clips
<b>862216</b>	Standard Antepartum Kit (Japan)	Paper (50-210), belts, gel, belts buttons, belt clips

## Standard Accessories Included

Description	Quantity
Toco transducer	1
Ultrasound transducer	1
Butterfly Belt Kit	2
Fetal paper pack (country-specific, installed)	1
Power cable	1
Instructions for Use	1
Documentation CD-ROM (includes Service Guide and Instructions for Use)	1

## Transducers

Transducer	Part Number
Ultrasound transducer	<b>M2736A</b>
Toco transducer for monitoring external Toco	<b>M2734A</b>
“Toco+” transducer for monitoring Toco or maternal heart rate	<b>M2735A</b>
ECG Patient Module for monitoring maternal heart rate	<b>M2738A</b>

## Fetal Accessories

Fetal Accessories		Part Number
Belt (reusable, gray, water resistant)	32 mm wide, 15 m roll	<b>M4601A</b>
	60 mm wide, 5 belts	<b>M4602A</b>
	60 mm wide, 15 m roll	<b>M4603A</b>
	50 mm wide, 5 belts	<b>M1562B</b>
Belt (reusable, brown, contains latex)	50 mm wide, 5 belts	<b>M1562A</b>
	60 mm wide, 5 belts	<b>1500-0642</b>
	60 mm wide, 15 m roll	<b>1500-0643</b>
Belt (disposable, yellow, water resistant)	60 mm wide, pack of 100	<b>M2208A</b>
Ultrasound gel	12 Bottles	<b>40483A</b>
	5 liter refill (with dispenser) for 40483A Shelf life: 24 months max.	<b>40483B</b>
Belt buttons, pack of 5		<b>M1569A</b>
Butterfly belt clip (pack of 6)		<b>9898 031 43401</b>
External Marker		<b>9898 031 43411</b>

## Recorder Paper

Supplied in cases of 40 packs. Each pack has 150 numbered pages.

Product Number	Geography	FHR Scale	Grid Color	Scale Units	Highlighted 3cm Lines?
<b>M1910A</b>	USA/Canada and Asia	30 - 240	Red/Orange	mmHg	Yes

Product Number	Geography	FHR Scale	Grid Color	Scale Units	Highlighted 3cm Lines?
<b>M1911A</b>	Europe/Japan	50 - 210	Green	mmHg and kPa	No
<b>M1913A</b>	Japan	50 - 210	Green	mmHg	Yes
<b>M1913J</b>	Japan	50 - 210	Green*	mmHg	Yes

\*Normal bradycardia and tachycardia alarm ranges are yellow; severe bradycardia and tachycardia ranges are red.

## Maternal Heart Rate Accessories

MECG Accessories	Part Number
MECG adapter cable	<b>M1363A</b>
Foam ECG electrodes, snap-fit, for MECG adapter cable	<b>40493D/E</b>

## Noninvasive Blood Pressure Accessories

### Adult/Pediatric Multi-Patient Comfort Cuffs and Disposable Cuffs

Patient Category	Limb Circumference (cm)	Bladder Width (cm)	Disposable cuff Part No.	Reusable cuff Part No.	Tubing
Adult (Thigh)	42.0 - 54.0	20.0	<b>M1879A</b>	<b>M1576A</b>	M1598B (1.5 m) or M1599B (3.0 m)
Large Adult	34.0 - 43.0	16.0	<b>M1878A</b>	<b>M1575A</b>	
Adult	27.0 - 35.0	13.0	<b>M1877A</b>	<b>M1574A</b>	
Small Adult	20.5 - 28.0	10.5	<b>M1876A</b>	<b>M1573A</b>	

### Adult Antimicrobial Coated Reusable cuffs

Patient Category (color)	Limb Circumference (cm)	Bladder Width (cm)	Part No.	Tubing
Adult Thigh (grey)	45.0 - 56.5	21.0	<b>M4559A</b>	M1598B (1.5 m) or M1599B (3.0 m)
Large Adult X-Long (burgundy)	35.5 - 46.0	17.0	<b>M4558A</b>	
Large Adult (burgundy)	35.5 - 46.0	17.0	<b>M4557A</b>	
Adult X-Long (navy blue)	27.5 - 36.5	13.5	<b>M4556A</b>	
Adult (navy blue)	27.5 - 36.5	13.5	<b>M4555A</b>	
Small Adult (royal blue)	20.5 - 28.5	10.6	<b>M4554A</b>	






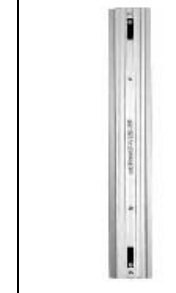
### Adult Soft Single Patient Single-Hose Disposable Cuffs

Patient Category	Limb Circumference (cm)	Bladder Width (cm)	Part No.	Tubing
Adult (Thigh)	45.0 - 56.5	20.4	<b>M4579A</b>	M1598B (1.5 m) or M1599B (3.0 m)
Large Adult X-Long	35.5 - 46.0	16.4	<b>M4578A</b>	
Large Adult	35.5 - 46.0	16.4	<b>M4577A</b>	
Adult X-Long	27.5 - 36.5	13.1	<b>M4576A</b>	
Adult	27.5 - 36.5	13.1	<b>M4575A</b>	
Small Adult	20.5 - 28.5	10.4	<b>M4574A</b>	

## Input Devices

Description	Option
Slimline keyboard with integrated trackball (includes spill cover)	<b>M8024A #A01</b>
Optical mouse	<b>M8024A #B01</b>
Trackball	<b>M8024A #C01</b>
Wireless trackball	<b>M8024A #C02</b>
Hand-Track	<b>M8024A #C03</b>

## Mounting Hardware

Mounts, Carts and Rollstands					
M2740A #A01	M2740A #A05	M2740A #C01	M2740A #R01	M2740A #U01	M2740A #W01
					
<b>Flush Wall Mount</b> for flat wall mounting	<b>Wall Mount (Arm)</b>	<b>Cart</b> with fixed angle mount and two drawers	<b>Rollstand</b> with tray	<b>Mounting Kit</b> for Avalon CTS for use with M2740A #C01	<b>Wall Channel</b> required for wall mounts A01 and A05

## Upgrade Options

Upgrade options are prefixed with M2702AU. For example, to add a sytem interface upgrade, order M2702AU Option J70.

Upgrade Options	
Option Number	Option Adds
B71	Noninvasive Blood Pressure. No supplies included.
C73	Triplets monitoring capability. (Not currently available in USA.)
J22	Dual PS/2 Interface for connecting a keyboard and mouse.
J70	System Interface: 1 x RS232 port and 1 x LAN port.
SD0	Rel. D.0 Software Upgrade. Required for monitors with Rel. C.0 software for compatibility with Avalon CTS and OB TraceVue via LAN connection.

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M2702A complies with the requirements of the Council Directive 93/42/EEC (Medical Device Directive).

