



# Vital signs trending with Philips monitor/defibrillators

## Introduction

Clinicians continually monitor and assess their patients' vital signs for patterns and significant deviations. To assist with these tasks, the vital signs trending feature\* provides vital signs trending data directly on the device display or printed on paper.

The feature gives clinicians a powerful tool to display real-time clinical data to assess whether a patient's status is improving, stabilized, or worsening.

\* The Vital Signs Trending is available in the following Philips monitor/defibrillators; Efficia DFM100 and HeartStart Intrepid, XL+, and MRx.

## Trending overview

In Monitor Mode, the Efficia DFM100 and the HeartStart Intrepid, MRx, and XL+ enable you to view and print numeric vital sign trending for the current patient. The trend data are visible at 1, 5, 10, 15, 30, or 60-minute intervals for up to the most recent 12 hours of monitoring on the MRx and 8 hours on the DFM100, Intrepid and XL+. Data are automatically acquired if parameters are on.

When viewing trending on the HeartStart Intrepid, the trending data is displayed on the lower two wave sectors. Use the horizontal scroll soft keys to scroll left and right (◀ and ▶) in the trending report. The soft key is inactive (grayed out) if there is no more data to be viewed in that direction. If there are more lines of data than can be shown on the screen, turn the Smart Select knob to scroll up and down the display.

Date	Aug 26	9:05	9:10	9:15	9:20	9:25	9:30	9:35	9:40	9:45	Time intervals
Parameters	HR	107	105	99	103	100	99	103	105	110	
	SpO <sub>2</sub>	100	100	99	98	100	99	100	100	99	
	Pulse	107	105	99	103	100	99	103	105	110	
	EtCO <sub>2</sub>	-?-	-?-	-?-	-?-	-?-	-?-	-?-	-?-	-?-	-?-
	AwRR	12	12	11	12	13	12	11	12	13	
	NBPs		120		120		117		120		
	NBPd		70		60		64		70		
	NBPm		82		80		81		82		
			9:09		9:19		9:29		9:39		
	Temp	98.7	98.5	98.7	98.6	98.4	98.7	98.5	98.4	98.5	

Figure 1: HeartStart Intrepid trending display (8 hours).

When viewing trending on the HeartStart XL+ and Efficia DFM100, the trending data is displayed on the lower two wave sectors. (See Figure 3 for a sample display.) The HeartStart XL+ uses the soft keys to scroll left and right (◀ and ▶), and the navigation buttons to scroll up and down (▲ and ▼), to see all monitored parameters and time intervals.

The Efficia DFM100 uses the soft keys to scroll left and right (◀ and ▶), and the Smart Select knob to scroll up and down, to see all monitored parameters and time intervals.

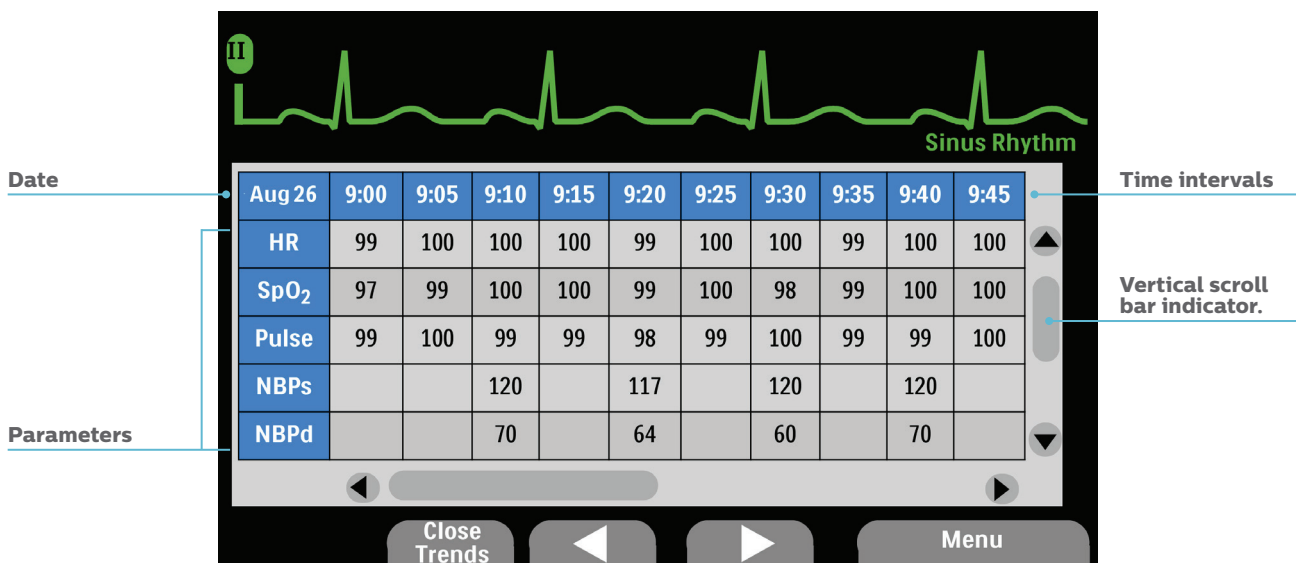


Figure 3: HeartStart XL+ and Efficia DFM100 trending display (8 hours).

When viewing trending on the HeartStart MRx, the trending data is displayed in the lower two wave sectors. (See Figure 2 for a sample display.) Soft keys scroll left and right (◀ and ▶), and navigation buttons below the display scroll up and down (▲ and ▼), so you can see the entire report for all time intervals and monitored parameters.

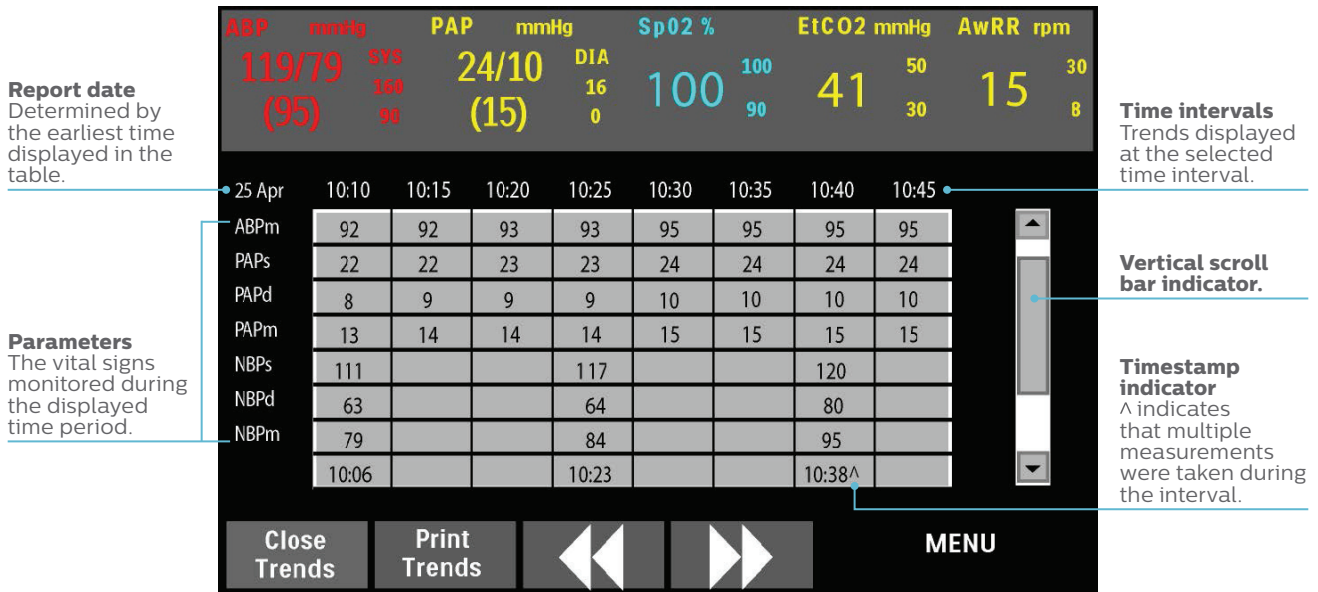


Figure 2: HeartStart MRx trending display (12 hours).

## About the measured and displayed data

- The most recent data appear in the far right column when trending is displayed or new data is available. Older data moves to the left. When the display is full, the oldest displayed data is removed but saved in an associated event summary.
- If you scroll horizontally to view older data, the Efficia DFM100 and HeartStart Intrepid, XL+ and MRx updates the newest data when you scroll back.
- A -?- displays for a parameter with invalid information, questionable data are indicated by a question mark just before the numeric value. Unavailable data are indicated by a blank space.
- If a parameter has not been measured during the display period, it is not listed in the far left column.
- If an inactive parameter becomes active when viewing the trending display, then the added parameter automatically appears in the report when the interval is updated and the latest data become available.
- Aperiodic measurements (e.g. NBP) are displayed with a measurement timestamp below the readings.
- The units of measure for trend data are not shown on the device display but are available on the printed report.

## Printing the trending report

For the HeartStart Intrepid, you can print a report for:

- The displayed period and interval using the **Print Trends** soft key
- The entire incident period using the **Summary** button
- A previous incident using the **Data Management** menu

Trend Report	26 Aug	9:45	9:40	9:35	9:30	9:25	9:20	9:15	9:10	9:05	
Event ID: (xxxxxxx)	HR	bpm	107	105	99	103	100	99	103	105	110
(Patient Name)	SpO2	%	100	100	99	98	100	99	100	100	99
Patient ID: (xxxxxxx)	Pulse	bpm	107	105	99	103	100	99	103	105	110
(incident Date)	EtCO2	mmHg	39	39	38	36	38	39	39	38	39
	AwRR	rpm	12	12	11	12	13	12	11	12	13
	NBPs	mmHg		120		120		117		120	
	NBPd	mmHg		70		60		64		70	
	NBPm	mmHg		82		80		81		82	
				9:39		9:29		9:19		9:09	
	Temp	F	98.7	98.5	98.7	98.6	98.4	98.7	98.5	98.4	98.5
HeartStart Intrepid											
S/N: (Device Serial Number)											
(Software revision)											

Figure 4: Printed HeartStart Intrepid trending report.

For the HeartStart MRx, you can print a report for:

- The displayed period and interval using the **Print Trends** soft key
- The entire incident period using the **Summary** button
- A previous incident using the **Data Management** menu

Trend Report	26 Aug	9:45	9:40	9:35	9:30	9:25	9:20	9:15	9:10	9:05	
(incident Date)	HR	bpm	107	105	99	103	100	99	103	105	110
Event ID	ABPs	mmHg	118	118	118	118	118	118	118	118	118
(Patient Name)	ABPd	mmHg	72	72	72	72	72	72	72	72	72
Patient ID: (xxxxxxx)	ABPm	mmHg	95	95	95	95	95	95	95	95	95
	PAPs	mmHg	25	24	26	25	25	26	25	24	23
	PAPd	mmHg	10	9	10	10	10	11	10	10	9
	PAPm	mmHg	16	15	16	16	17	18	16	15	14
M3535A S/N: (Device Serial Number)											
(Software revision)											

	NBPs	mmHg		120		120		117		120	
	NBPd	mmHg		70		60		64		70	
	NBPm	mmHg		82		80		81		82	
				9:39		9:29		9:19		9:09	
	EtCO2	mmHg	39	39	38	36	38	39	39	38	39
	AwRR	rpm	12	12	11	12	13	12	11	12	13
	SpO2	%	100	100	99	98	100	99	100	100	99
	Pulse	bpm	107	105	99	103	100	99	103	105	110
	Temp	F	98.7	98.5	98.7	98.6	98.4	98.7	98.5	98.4	98.5

Figure 5: Printed HeartStart MRx trending report.

For the HeartStart XL+ and DFM100, you can print a report for the current incident using the Reports button. Alternatively, you can print one from Data Management Mode.

Trend Report	26 Aug		9:45	9:40	9:35	9:30	9:25	9:20	9:15	9:10	9:05
Event ID: (xxxxxxx)	HR	bpm	107	105	99	103	100	99	103	105	110
	SpO2	%	100	100	99	98	100	99	100	100	99
Patient ID: (xxxxxxx)	Pulse	bpm	107	105	99	103	100	99	103	105	110
Patient Sex: (M or F)	NBPs	mmHg		120		120		117		120	
	NBPd	mmHg		70		60		64		70	
(incident Date and Time)	NBPm	mmHg		82		80		81		82	
HeartStart XL+				9:39		9:29		9:19		9:09	
S/N: (Device Serial #)											
SW Rev: (xx.xx.xx)											

Figure 6: Printed HeartStart XL+ trending report.

Trend Report	26 Aug		9:45	9:40	9:35	9:30	9:25	9:20	9:15	9:10	9:05
Event ID: (xxxxxxx)	HR	bpm	107	105	99	103	100	99	103	105	110
(Patient Name)	SpO2	%	100	100	99	98	100	99	100	100	99
Patient ID: (xxxxxxx)	Pulse	bpm	107	105	99	103	100	99	103	105	110
Patient Sex: (M or F)	EtCO2	mmHg	39	39	38	36	38	39	39	38	39
(incident Date)	AwRR	rpm	12	12	11	12	13	12	11	12	13
	NBPs	mmHg		120		120		117		120	
Efficia DFM100	NBPd	mmHg		70		60		64		70	
S/N: (Device Serial Number)	NBPm	mmHg		82		80		81		82	
(Software revision)				9:39		9:29		9:19		9:09	

Figure 7: Printed Efficia DFM100 trending report.

## Conclusion

Philips collaborated with clinicians who use our HeartStart monitor/defibrillators to develop vital sign trends of patient information to support clinical decision making. The vital sign trends:

- Provide context to assess the patient's status and support clinical decision making
- Eliminate the necessity to record the vital signs during a cardiac emergency or during a transport
- Provide alignment between different measurements in time, and help clinicians to focus on relevant information and correlate different parameters

