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# **Summary**

The élance 5/5i/5c/7/7i/7c/5 elite/ 5i elite/ 5i elite/ 5c elite/ 7 elite / 7i elite / 7c elite are integrated vital signs monitors with widescreen resistive touchscreen display. The monitors raise a new standard of style, convenience, economy, ease of use and reliability in patient monitors. Weighing not more than 2.7kg for the élance 5 series and not more than 3.0kg for the élance 7 series, including an up to 5-hour lithium-ion battery, they are one of the lightest full-featured vital signs monitors. With its 7.5cm depth, the élance vital signs monitors fit easily into even the most crowded bedside environments.





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# **Features**

#### **Parameters Supported**

Standard parameters include Electrocardiogram (ECG), Respiration, Non-Invasive Blood Pressure (NIBP), Pulse Oximetry (SpO<sub>2</sub>), Dual Temperature. Additional parameters such as Dual Invasive Blood Pressure and Capnography are also available depending on the model configurations.

**User Interface** All controls are onscreen touch keys, with the exception of ON/OFF key. A tethered stylus is also available for function navigation.

**Display** Widescreen, color thin film transitive (TFT) liquid crystal display (LCD) with resistive touchscreen.

#### Dimensions

#### 12.1 inch Display:

Width	297 mm (11.7 inches)
Height	227 mm (9.0 inches)
Depth	75 mm (3.0 inches)
Weight	3.0 kg (6.6 lbs)

#### 10.2 inch Display:

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Width	252 mm (9.9 inches)
Height	193 mm (7.6 inches)
Depth	75 mm (3.0 inches)
Weight	2.7kg (6.0 lbs)

2 LCD sizes are available:

#### 12.1 inch Display:

Resolution 1280 x 800 pixels Size (Horizontal) 262 mm (10.3 inches) (Vertical) 164 mm (6.5 inches)



#### **Parameters and Waveforms**

The *élance* 5 will display up to four waveforms and up to six numerics at the display zones.

All the other *élance* 5 model configurations (*élance* 5*i* and 5*c*) will display up to five waveforms and up to seven numerics at the display zones.

All *élance* 7 model configurations will display up to six waveforms and up to seven numerics at the display zones

**Trends** Displays up to 120 hours of tabular trend data. Save at 1 minute trend record time period.

Time interval of 1, 2, 3, 5, 10, 15, 30, 60, 120-minutes

#### 10.2 inch Display.

Resolution 800 x 480 pixels Size (Horizontal) 222 mm (8.7 inches) (Vertical) 134 mm (5.3 inches)



**Sweep Speed**: A variety of speeds are available under parameter control.

**Power** An internal power supply provides power to the monitor

#### **Advanced Power Management**

A built-in lithium-ion battery maximizes battery performance for up to 5 hours during transport.

**Connectors** RJ45 (10/100 Base T Ethernet), USB (for software updates, keyboard/mouse interface) and RJ25 (for nurse alert)

#### Languages Supported

English, Spanish, Portuguese, Italian, French, German, Russian, Chinese simple, Chinese traditional, Polish, Dutch, Turkish, Czech.

# Options

#### Ethernet (Option P)

Provides Central surveillance capability from any monitored patient on the network. 10/100 Base T connector (RJ45) provided

#### Recorder (Option U)

Dual channel recording capability via external Recorder

#### Printing Method

Thermal array print head

Print Resolution 8 dots per mm (vertical) and 16 dots per mm (horizontal) at 25 mm per second sweep speed

**Prints** Manual and automatic alarm recordings for waveforms, vital signs data and trends

Paper Speed 25 mm per second

Alarm Record Records any parameters in an alarm state when the alarm recording is active

Indicators Paper out

**Record** Enables selection of up to two active monitor channels plus trends



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# **Product Specifications**

Refer to the specific parameter section for the appropriate specifications.

## ECG

Detects cardiac QRS complexes and ventricular fibrillation; evaluated using ANSI/AAMI EC57:1998/(R)2003 with AHA, CU, MIT, and NST databases.

Signal Width 70ms to 120ms (Q to S)	Display Bandwidth	
<b>Input Impedance</b> ≥2.5 MΩ at 10 Hz	Extended 0.05 to 100Hz Monitor 0.5 to 40 Hz	
Display Sweep Speeds 6.25, 12.5, 25.0 mm/sec	Heart Rate Update Rate Every 1 second	
Heart Rate Alarm Limits High 20 to 300 bpm	Channel Crosstalk <2.5 mm p-p per AAMI EC13	
Low 15 to 295 bpm	Common Mode Rejection Ratio <1 mv, reference to input (rti) per AAMI EC13 Baseline Stability ≤ 0.5 mV Calibration Signal 1 mV p-p ±10%	
Pacer Detection Detects pacer pulses of ±2 mV to ±700 mV with pulse widths of 0.25 to 2 mage		
and rise times 10% of width not to exceed 100 microsec.		
<b>Pacer Rejection</b> Single and double pulse pacers with less than 4 msec tails.		
	Signal Width 70ms to 120ms (Q to S) Input Impedance ≥2.5 MΩ at 10 Hz Display Sweep Speeds 6.25, 12.5, 25.0 mm/sec Heart Rate Alarm Limits High 20 to 300 bpm Low 15 to 295 bpm Pacer Detection Detects pacer pulses of ±2 mV to ±700 mV with pulse widths of 0.25 to 2 msec and rise times 10% of width not to exceed 100 microsec. Pacer Rejection Single and double pulse pacers with less than 4 msec tails.	

## **ST Segment Analysis (Option T)**

Resolution	0.05 mm	Display	<b>/s</b> 5-lead numerics	<b>Trends</b> Up to 120 hours of trend data.
Threshold Range	0.25-8 mm (1mV=10mm)	<b>Display</b> ST	<b>/ Bandwidth</b> 0.05 to 40 Hz	
Alarms	Single lead			

## Arrhythmia Analysis (Option A)

Standard Leads I, II, III, V, AVR, AVL,AVF

Input Channels Simultaneous acquisition of all standard leads Arrhythmia Analysis Asystole, VTach, VFib, PVC, Couplets, Pacer non-capture, Pause, high/ low rate violation



# 93300

# *Jance*<sup>®</sup> Vital Signs Monitor

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## Respiration

Input 5-lead or 3-lead ECG cable

Measurement Technique Trans-thoracic Impedance

**Respiration Rate Range** 0 to 120 breaths per minute

**Detection Sensitivity**  $0.5 \Omega$  at 500  $\Omega$  input source impedance.

**Respiration Resolution** 1 breath per minute

Respiration Rate Alarm Limits

High 6 to 120 breaths per minute

Low 5 to 119 breaths per minute

Accuracy ±3 breath per minute

Numeric Update Rate Every 1 second or immediately at the onset of an alarm

Waveform Sweep Speeds 6.25 mm/sec

## **NIBP**

Measurement Method Oscillometric

Measurement Units mmHg

Measurement Mode Automatic or Manual

Automatic Measurement Intervals Adjustable at intervals of 3, 4, 5, 10, 15, 30, 60, 90, 120 or 240 minutes;

#### **Blood Pressure Measurement Accuracy**

Satisfies ANSI/AAMI SP10: 2002

	mean error	standard deviation
systolic	+1.7 mmHg	6.3 mmHg
diastolic	- 3.2 mmHg	6.8 mmHg

Resolution 1 mmHg

Measurement Ranges

Systolic Pressure Range 30 to 250 mmHg

*Diastolic Pressure Range* 10 to 210 mmHg

*Mean Pressure Range* 20 to 230 mmHg

Pulse Rate Range 30 to 250 bpm **Measurement Time** 30 seconds (typical); < 135 seconds (maximum)

Automatic Cuff Deflation Measurement time exceeding 135 sec in adult/pediatric or maximum pressure value exceeding 300 mmHg

Overpressure Protector 290 mmHg at normal condition 300 +/- 10 mmHg at single fault condition

Numeric Update Rate Every 1 second

## Temperature

Probe Type Thermistor probe YSI 400

Units °C or °F

Measurement Range 5.0° C to 50.0° C (41.0° F to 122.0° F)

**Display Parameters** T1, T2, and delta temperature (DT) (two probes attached)

#### Accuracy

The maximum permissible error of a complete thermometer is  $\pm 0.2^{\circ}$  C ( $\pm 0.4^{\circ}$  F) in the temperature range from 5.0° C to 50.0° C (41.0° F to 122.0° F)

Display Accuracy ±0.1° C plus probe accuracy

Probe Accuracy ±0.1° C (±0.2° F)

Resolution 0.1° C

Numeric Update Rate Every 1 second

#### **Alarm Limits**

High 32.1° to 42.0° C (89.7° to 107.6° F) Low 32.0° to 41.9° C (89.6° to 107.5° F)



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## SpO<sub>2</sub>

#### Spacelabs SpO<sub>2</sub> (Option S)

Measurement Method Functional saturation (oxygen saturation of functional hemoglobins)		Saturation Resolution 1% Measurement Accuracy		Pulse Rate Resolution 1 bpm Saturation Alarm Limits	
O <sub>2</sub> Saturation	30% to 100%	Without Motion 70	) to 100% ±4%	Low	50% to 99%
Pulse Rate	30 to 250 bpm	I		Numeric Updat	e Every 1 second
<b>Display Sweep</b> 6.25, 12.5, 25.0	<b>Speed</b> mm/sec	<i>Pulse Rate</i> Without Motion: 30 to 250BPM ±3BPM		<b>TruLink<sup>®</sup> Senso</b> Operate at or ne	ors ear 660 nm and 940 nm;
Sample Rate	50sps			total radiated optical power from 500 to	

#### Note:

*élance* is capable of displaying  $O_2$  Saturation from 0% - 100%. Minimum  $O_2$  Saturation at 30% is stated as the lowest range supported by test device simulator is 30%.

#### Masimo SET SpO<sub>2</sub> (Option M)

Measurement Method		
Functional saturation (oxygen		
saturation of functional hemoglobins)	F	

#### Measurement Range

O<sub>2</sub> Saturation 1% to 100% Pulse Rate 25 to 240 bpm

Saturation Resolution 1%

#### **Measurement Accuracy (Arms)**

Sensor	Weight	Saturation 70 to 1	Accuracy 00%
Models	Range	No Motion	Low Perfusi on†
LNCS Reusable	Sensors		
LNCS DC-I	>30 kg	±2%	±2%
LNCS DC-IP	10 to 50 kg	±2%	±2%
LNCS TC-I	>30 kg	±3.5%	±3.5%
LNCS TF-I	>30 kg	±2%	±2%
LNCS Adhesive Sensors			
LNCS Adtx	>30 kg	±2%	±2%
LNCS Pdtx	10 to 50 kg	±2%	±2%

Pulse Rate Resolution	1 bpm

Pulse Rate Accuracy

	-
No Motion	±3 bpm
Motion	±5 bpm
Low Perfusion	±3 bpm

## Numeric Update

Every 1 second

† Pulse amplitude >0.20%; % transmission >5%

These sensors have been clinically validated by Masimo against the Masimo MS-11 oximetry board.

#### **Saturation Alarm limits**

High	51% to 100%
Low	50% to 99%

1,000 nm does not exceed 60 mW

#### **Masimo Sensors**

Operate at or near 660 nm and 905 nm; total radiated power from 500 nm to 1000 nm does not exceed 0.79 mW.

#### **No Implied License**

Possession or purchase of this device does not convey any express or implied license to use the device with unauthorized sensors or cables that would alone, or in combination with this device, fall within the scope of the Masimo patent rights.



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#### Nellcor OxiMax SpO<sub>2</sub> (Option N)

**Measurement Method** Functional saturation (oxygen saturation of functional hemoglobins)

#### **Measurement Range**

O<sub>2</sub> Saturation 1% to 100%

Pulse Rate 25 to 300 bpm

Saturation Resolution 1% Pulse Rate Resolution 1 bpm

# Pulse Rate Accuracy

25 – 250 bpm ±3 bpm

# Saturation Alarm LimitsHigh51% to 100%Low50% to 99%

Numeric Update Every 1 second

#### Measurement Accuracy (Arms)

Sensor Models	Saturation Accuracy 70% to 100%	
OxiMax Sensor Models	Single Patient Use	
MAX-A* MAX-AL*	±2%	
MAX-N*† (Adult)	±2%	
MAX-P*	±2%	
MAX-FAST	±2%	
MAX-R**	±3.5%	
OxiCliq Sensor Models, Single Patient Use		
OxiCliq A	±2.5%	
OxiCliq P	±2.5%	
OxiCliq N† (Adult)	±2.5%	
Reusable Sensor Models		
DS-100A	±3%	
OXI- AN(Adult)	±3%	

# \* The accuracy specification under motion conditions is ±3%.

- \*\* The accuracy specification has been determined between saturations of 80% and 100%.
- † The MAX-N and the OxiCliq N were tested on patients >40 kg

These sensors have been clinically validated by Nellc or against the Nellcor NELL-1 oximetry board.

#### **Nellcor Sensors**

Operate at or near 660 nm and 880 nm; total radiated optical power from 500 to 1,000 nm does not exceed 15 mW

## **Invasive Blood Pressure**

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Transducer Type Strain-gauge, standardized to 5  $\mu$ V/mmHg/V (±1%)

Transducer Excitation Voltage 5.00 VDC ±1%

Dynamic Waveform Range -50 to +300 mmHg

Sample Rate 50sps

Measurement Units mmHg

Measurement Range -50 to +300 mmHg

Accuracy ±2 mmHg or ±2 % (whichever is greater)

Alarm Limits High -45 to +250 mmHg Low -50 to +245 mmHg

Waveform Sweep Speeds 6.25, 12.5, 25.0 mm/sec

#### **Display Parameters**

Systolic, diastolic, and mean pressures displayed for arterial, pulmonary artery, and generic pressure; mean pressures displayed for all others

Labels Arterial (ART), Central Venous (CVP), Left Atrial (LAP), Pulmonary Artery (PA), Right Atrial (RAP), and Generic Pressure (PRS)

Numeric Update Rate Every 1 second



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## EtCO<sub>2</sub>

(élance 5c / 7c / 5c elite / 7c elite)

Parameter Displayed		Alarm Limit Ranges		EtCO <sub>2</sub> Accuracy	
$CO_2$ waveform, $EtCO_2$ , $FiCO_2$		<i>EtCO</i> ₂ High	7 mmHg to 80 mmHg 0.8 kPa to 10.6 kPa	0 to 38 mmHg, ± 2 mmHg	
CO <sub>2</sub> Measurement Range				39 to 99 mmH	g,
EtCO <sub>2</sub>	0 mmHg to 99 mmHg 0 kPa to 13.2 kPa	Low 5 mmHg to 60 mmHg 0.6 kPa to 7.9 kPa		± (5% of reading + 0.08% for every 1 mmHg above 38 mmHg)	
Units	mmHg, kPa	<i>FiCO</i> <sub>2</sub> 0 mmHg to 24 mmHg		<b>Total System Response Time</b> < 5 seconds	
Display Sweep Speeds 6.25 mm/sec			0 kPa to 3.4 kPa		
		<b>Respiration Rate Range</b> 0 – 150 bpm		Numeric Update Rate Every 1 second	
Warm Up <10 seconds for full accuracy specification		Sample	Line Flow Rate	Rise Time	190mSec max
		50 ml/min – 7.5 + 15 ml/min, flow measured by volume		Automatic Barometric Pressure Compensation Yes	

# Classification

MDD Class IIb

EN 60601-1

Class 1 Requires outlet with safety ground (Protective Earth) conductor Rated for continuous operation

CISPR11, Group 1, Class A Suitable for use in all establishments other than domestic that are connected to a low supply network

# **Electrical Specifications**

Mains Power AC Mains, 100 - 240 V, 50 - 60 Hz, 2-1A

Fuses Qty 2, T1.0 A, 250 volts, IEC (5×20 mm)

Internal Power Supply 30W Medical Grade

**Battery** A single Li-ion battery provides up to 5 hours Isolation EN 60601-1

**Compliance** 91/157/EEC Battery Declaration Directive

# **Environmental Requirements**

#### Storage

## Operating

Temperature $-20$ $(-4^{\circ})$ Humidity15% (non)AttitudeLie to	° to 60 ° C to 140° F)	Temperature	0º to 40º C (32º to 104º F)
Humidity 15% (non			
	to 95% -condensing)	Humidity	15% to 95% (non-condensing)
(Up t	o 12,200 meters to 40,000 feet)	Altitude	Up to 3,000 meters (Up to 9,842 feet)



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# Accessories

#### External Recorder, two-channel



P/N 685-0254-00 élance Recorder

P/N 685-0254-01 élance elite Recorder

#### **Mounting Kits**

A variety of mounting (wall mounts, tabletop mounts) and mobility solutions (roll stands, bedrail hook) are available from Spacelabs Healthcare.

P/N 016-0796-00 P/N 016-0796-01 P/N 016-0797-00 P/N 016-0797-01 Wall mount

P/N 016-0794-00 P/N 016-0795-00 10.2" Tabletop mount, White P/N 016-0794-01 P/N 016-0795-01 10.2" Tabletop mount, Black

P/N 016-0798-00 P/N 016-0799-00 12.1" Tabletop mount, White

P/N 016-0798-01 P/N 016-0799-01 12.1" Tabletop mount, Black

P/N 016-0791-00 Roll stand

# **Documentation**

élance Vital Signs Monitor Documentation CD-ROM (P/N 084-1963-00)

# **Regulatory Approvals**

**C €**0123

Meets EN 60601-1. CE marked in accordance with the Medical Device Directive 93/42/EEC.