

# TRUSCOPE® elite - A6

## 14.1" Modular Multipara Patient Monitor



### Features

- 14.1" touchscreen color TFT LCD display
- Upto 7 lead ECG display (12 lead display optional)
- 9 different screen configurations
- ST & Arrhythmia analysis
- Drug dose & hemodynamic calculations
- OXY-CRG software
- External video (VGA) output
- Interfaces : DVI display
- 168 hours graphical and tabular trends
- Non - Volatile memory

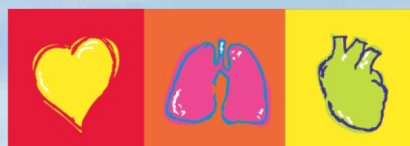
### Optional

- Central Monitoring System : Wired / Wi-Fi

### Optional modular upgrades

- ETCO<sub>2</sub> (Mainstream / Sidestream / Microstream )
- Multigas monitoring
- Cardiac Output (ICG)
- 12 lead ECG
- Dual IBP
- Nellcor or Masimo SpO<sub>2</sub>
- Wi-Fi module for wireless data transmission
- BIS
- EEG

CE 0123



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The Art of Diagnostics

## EMS (Emergency Mobile Server)

### Features

- 3.5" Color TFT-LCD display
- Compact design, convenient to carry, allowing patient to move freely
- 8 hours of graphical & tabular trends
- Battery back-up : 1 hour
- Providing fast and convenient monitoring during the patient's transfer with display, battery, alarm and storage capability
- Patient data gets transferred automatically when connected to base unit



EMS

PARAMETERS	EMS 1	EMS 2	EMS 3	EMS 4
3/5 Lead ECG	✓		✓	
12 Lead ECG		✓		✓
Digital SpO <sub>2</sub>	✓	✓	✓	✓
2-TEMP	✓	✓	✓	✓
RESP	✓	✓	✓	✓
NIBP	✓	✓	✓	✓
2-IBP	✓	✓		

\* Standard Configuration : EMS 3

## MPS (Multi Parameter Server)

### Features

- 8 hours of graphical & tabular trends
- Battery back-up : 1 hour
- Patient data gets transferred automatically when connected to base unit

MPS

PARAMETERS	MPS 1	MPS 2	MPS 3	MPS 4
3/5 Lead ECG	✓		✓	
12 Lead ECG		✓		✓
Digital SpO <sub>2</sub>	✓	✓	✓	✓
2-TEMP	✓	✓	✓	✓
RESP	✓	✓	✓	✓
NIBP	✓	✓	✓	✓
2-IBP	✓	✓		

\* Standard Configuration : MPS 3



MPS with Nellcor SpO<sub>2</sub>

PARAMETERS	MPS 5	MPS 6	MPS 7	MPS 8
3/5 Lead ECG	✓		✓	
12 Lead ECG		✓		✓
Nellcor SpO <sub>2</sub>	✓	✓	✓	✓
2-TEMP	✓	✓	✓	✓
RESP	✓	✓	✓	✓
NIBP	✓	✓	✓	✓
2-IBP	✓	✓		

## Advanced Modular Monitoring

### Nellcor SpO<sub>2</sub>



#### SpO<sub>2</sub> (Nellcor) Module

Measurement range : 0% to 100%

Resolution : 1%

Accuracy :

- 70% to 100% : ±2% (Adult / Pediatric)

- 70% to 100% : ±3% (Neonate)

- 70% to 100% : ±2% (Low perfusion)

- 0% to 69%, unspecified

#### Pulse Rate

- Measurement range : 20bpm~300bpm

- Resolution : 1 bpm

- Accuracy : 20 to 250 bpm: ± 3 bpm

### AG



#### Multigas (Sidestream) Module

Measurement method : Infrared spectrum

Measurement mode : Sidestream

Measurement parameters : CO<sub>2</sub>, N<sub>2</sub>O, O<sub>2</sub>, agent  
(ISO, ENF, SEV, HAL, DES)

Resolution : 1%

Unit : %, mmHg

Measurement and alarm range of AG :

Gas	Range	Accuracy
CO <sub>2</sub>	0-10%	±(0.2% <sub>ABS</sub> + 2% <sub>REL</sub> )
O <sub>2</sub>	10-100%	±(2% <sub>ABS</sub> + 2% <sub>REL</sub> )
N <sub>2</sub> O	0-100%	±(2% <sub>ABS</sub> + 8% <sub>REL</sub> )
HAL, ISO, ENF	0-5%	±(0.15% <sub>ABS</sub> + 10% <sub>REL</sub> )
SEV	0-8%	±(0.15% <sub>ABS</sub> + 10% <sub>REL</sub> )
DES	0-18%	±(0.15% <sub>ABS</sub> + 5% <sub>REL</sub> )

Respiration rate range : 0~150 rpm

Sample flow rate: 50ml/min ± 10ml/min

### ETCO<sub>2</sub>



#### ETCO<sub>2</sub> (Mainstream) Module

Measurement method : Infrared spectrum

Measurement range : 0 ~ 15%

Resolution : 1%

Unit : %, mmHg, kPa

Accuracy : ± (0.3%<sub>ABC</sub> + 4%<sub>REL</sub>)

Warm up time : < 10 seconds

Rise time : ≤ 90 ms

awRR measurement range: 0 ~ 150 rpm

awRR measurement accuracy : ± 1 rpm

Total system response time : < 1 second

#### ETCO<sub>2</sub> (Sidestream) Module

Measurement range : 0 ~ 15%

Resolution : 0.1%

Unit : %, mmHg, kPa

Accuracy : ± (0.3 kPa + 4% of reading)

Warm up time : < 10 seconds

Rise time : ≤ 200 ms

awRR measurement range: 0 ~ 150 rpm

awRR measurement accuracy : ± 1 rpm

Sample flow rate : 50 ml/min ± 10 ml/min

Total system response time : < 3 secs

#### ETCO<sub>2</sub> (Microstream) Module

Measurement method : Infrared spectrum

Measurement range : 0-19.7% (0-150 mmHg)

Resolution : 0.1% or 1 mmHg

Unit : %, mmHg, kPa

Accuracy : 0 - 40 mmHg, ± 2 mmHg

41 - 70 mmHg, ± 5% of reading

71 - 100 mmHg, ± 8% of reading

101 - 150 mmHg, ±10% of reading

(760 mmHg, temperature is 25° C)

(when RR > 80 rpm, all the range is ± 12% of reading)

Warm up time : Less than 20 secs to 2 mins

Rise time : < 3 secs

awRR measurement range: 2 ~ 150 rpm

awRR measurement accuracy : ± 1 rpm

Sample flow rate : 50 ml/min ± 10 ml/min

Total system response time : < 3 secs

### Masimo SpO<sub>2</sub>



#### SpO<sub>2</sub> (Masimo) Module

Measurement range : 0~100%

Resolution : 1%

Accuracy :

- At 70~100%, ±2%

(adult, pediatric, non-motion conditions)

- At 70~100%, ±3%

(neonate, non-motion conditions)

- At 70~100%, ±3 % (motion conditions)

- At 0~69%, unspecified

#### Pulse Rate

- Measurement range : 25~240 bpm

- Accuracy : ±3 bpm (non-motion conditions)

±5 bpm (motion conditions)

- Resolution : 1 bpm

### ICG



#### Non-Invasive Cardiac Output Module

Method: Measurement of thoracic electrical bio impedance

Measurement range:

- HR : 40~250 bpm

- SV : 5 ~ 250 mL

- SI : 5 mL / m<sup>2</sup> to 125 mL / m<sup>2</sup>

- C.O : 1.4 ~ 15 L / min

- TFC : 15~143 / kΩ

Accuracy:

- HR : ±2 bpm

- SV : unspecified

- C.O : unspecified

Alarm range:

- C.I : 0.0 L/min/m<sup>2</sup> to 15.0 L/min/m<sup>2</sup>

continuously adjustable

- TFC : 10 /kΩ to 150/kΩ continuously adjustable

### Dual IBP



#### IBP Module

Measurement range : -50~350 mmHg

Resolution : 1 mmHg

Unit : mmHg, kPa, cmH<sub>2</sub>O

Accuracy : Static: ±1 mmHg or ±2%,

whichever is greater

(exclusive of transducer)

±4 mmHg or ±4%,

whichever is greater

(inclusive of transducer)

Dynamic : ±4 mmHg or 4%,

whichever is greater

Sensitivity of transducer : 5 uV/V/mmHg, ±2%

Impedance of transducer : 300~3000 Ω

Kind of measurements :

- Arterial Pressure (ART)

- Pulmonary Artery Pressure (PA)

- Left Atrium Pressure (LAP)

- Right Atrium Pressure (RAP)

- Central Venous Pressure (CVP)

- Intracranial Pressure (ICP)

- P1/P2

Alarm range :

- ART : 0~+350 mmHg

- PA : -10~+120 mmHg

- CVP/RAP/LAP/ICP : -10~+40 mmHg

- P1/P2 : -50 mmHg to +360 mmHg



# Technical Specification of TRUSCOPE® elite-A6

## General

### Main Unit

- Size : 422 mm (W) X 213 mm (D) X 362 mm (H)
- Weight : ≤ 9 kg
- Standard module slot : 1
- Additional module rack slot : 4

### Power supply

- Power voltage : AC 100-240V 50/60 Hz
- Power input : ≤ 150 VA
- Input current : 1.7 to 0.8 A
- Safety class : Category I

### Display

- 14" Color TFT-LCD
- Resolution : 1280 X 800 pixels

### Battery

- Type : Rechargeable lithium-ion battery
- Operating time under the normal use and full charge : ≥ 60 minutes
- Charge time : 6 hours to 100 % (standby)

### Recorder (Optional)

- Method : Thermal dot array
- Paper width : 50 mm (1.97 in)
- Paper speed : 12.5 / 25 / 50 (mm/sec)
- Traces : Maximum 3 tracks

### Alarm

- Level : Low, medium and high
- Indication : Auditory and visual
- Patient physiological alarm light color : Yellow & Red
- Equipment technical alarm light color : Blue
- Supports pitch tone and multi-level volume
- Supports custom arrhythmia tone

### Input device

- Touchscreen option
- Knob: Standard configuration
- Mouse input: Support
- Keyboard input: Support

### System output & Extensible Interfaces

- Ethernet network : 1 Standard RJ45 socket
- Defibrillation output : 1 RJ11 socket
- Nurse Call : 1 BNC socket
- Video output : 1 DVI port, 1 VGA port
- USB1.1 port : 6
- 12 V DC input : 1 socket
- SD memory card : 2GB
- Analog output (ECG or IBP) : (Option)
- Defibrillator & Cautery Protected

### Trend and Reviewing

- Trend data : 168 hours
- NIBP measurement reviewing : 1000 groups
- ARR event : 128 groups of ARR events & associate waveforms
- Alarm event : 128 groups of parameter alarm events & the associated parameter

### Environment

- Operating temperature: 5°~40° C
- Storage temperature : 20° to + 55° C
- Storage humidity : 10% to 93% (non condensing)
- Operating atmospheric pressure : 700 hPa to 1060 hPa
- Storage atmospheric pressure : 500 hPa to 1060 hPa

### Safety

- IEC60601-1 Approved, CE marking according to MDD93/42/EEC

## ECG

Lead mode : 3, 5, 12 leads ECG input  
Lead selection : I, II, III

I, II, III, aVR, aVL, aVF, V  
I, II, III, aVR, aVL, aVF, V1 ~V6 (Option)

Gain : 2.5 mm/mV, 5 mm/mV, 10 mm/mV, 20 mm/mV,  
40 mm/mV, Auto

CMRR : Monitor mode ≥ 105 dB  
Surgery mode ≥ 105 dB  
Diagnostic mode ≥ 90 dB

Frequency response (-3dB) : Monitor mode 0.5~40 Hz  
Surgery mode 1~25 Hz  
Diagnostic mode 0.05~150 Hz

Input impedance : ≥ 5.0 MΩ  
ECG signal range : ±10.0 mV  
Leakage current : <10 uA

Standardizing signal : 1mV ±5%  
Baseline recovery: <5 sec after defibrillation  
(Mon or Surg mode)

Indication of electrode separation : Every electrode  
(exclusive of RL)

Protection : Breakdown Voltage 4000 VAC 50/60 Hz;  
defibrillator proof

Sweep speed : 12.5 mm/s, 25 mm/s, 50 mm/s

## Heart Rate

Range : Adult 10~300 bpm,  
Pediatric & Neonate 10~350 bpm  
Resolution : 1 bpm  
Accuracy : ±1% or ±1 bpm

## ST segment

Measurement range : -2.0 mV~2.0 mV  
Accuracy : -0.8 mV~0.8 mV, ±0.02 mV or ±10%  
Over ± 0.8 mV unspecified  
Resolution : 0.01 mV

## Respiration

Method : Thoracic impedance

Lead selected from: I (RA-LA) or II (RA-LI); Default: 2

Gain : x0.25, x1, x2, x4

Bandwidth: 0.25 Hz to 2.0Hz (-3dB)

Sweep Speed : 6.25 mm/s, 12.5 mm/s, 25 mm/s

Measuring impedance range : 0.2~3 Ω

Measurement range : 0~150 rpm

Resolution : 1 rpm

Accuracy : ±2 rpm or 2%

Delay Apnea Alarm : 10s, 15s, 20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s

## NIBP

Measurement method : Automatic Oscillometry

Range of measurement :

Adult : SYS 30~270 mmHg

DIA 10~220 mmHg

MAP 20~235 mmHg

Child : SYS 30~235 mmHg

DIA 10~220 mmHg

MAP 20~225 mmHg

Neonate : SYS 30~135 mmHg

DIA 10~100 mmHg

MAP 20~125 mmHg

Cuff pressure range : 0~300 mmHg

Resolution : 1 mmHg

Pressure accuracy: Static: ±2% or ±3 mmHg

Clinical : ±5 mmHg (average error)

Standard deviation: ≤ 8 mmHg

Unit : mmHg, kPa

Measurement mode: Manual, Auto, STAT

Intervals for AUTO measurement time :

1, 2, 3, 4, 5, 10, 15, 30, 60, 90 minutes; 2, 4, 8 hours

STAT mode cycle time: 5 minutes, at 5 seconds interval

Overpressure protection : Yes

Pulse rate range : 40~240 bpm

## Digital SpO<sub>2</sub>

Measurement range : 0~100%

Resolution : 1%

Accuracy : At 70~100%, ±2

### Pulse Rate

- Measurement range : 25~255 bpm

- Resolution : 1 bpm

- Accuracy : ±1% or ±1 bpm

## Temperature

Measurement range : 0.0°C~50.0°C (32°F~122°F)

Accuracy : ±0.1° C or ±0.1° F

Resolution : 0.1° C

Unit : Celsius (°C), Fahrenheit (°F)

## BIS & EEG (CSM module)

EEG sensitivity : ± 400 μV

Noise : < 2μVp-p, < 0.4 μV RMS, 1-250 Hz

CMRR : >140 dB

Input impedance: >50 Mohm

EMG : 0-100 logarithmic. Filter 75-85 Hz,

1 second update

BIS % : 0-100 % . Filter 2-42 Hz, 1 second update

Alarms : High / low with user selectable limit

EEG : 1 Channel

## Optional modular upgrades

ETCO<sub>2</sub> (mainstream / sidestream / microstream)

Multigas monitoring

Cardiac output (ICG)

12 lead ECG

IBP

Nellcor or Masimo SpO<sub>2</sub>

Wi-fi module for wireless data transmission

BIS

EEG

## Certification



## Standard accessories for basic 5 para unit with EMS3/ MPS3 module

- Power cord - 1 no.
- ECG cable (5 lead) - 1 no.
- Disposable ECG electrodes - 10 nos.
- Reusable SpO<sub>2</sub> sensor (adult) with extension cable - 1 no. each
- Skin temperature probe - 1 no.
- Rectal temperature probe - 1 no.
- NIBP cuff (Adult, Pediatric & Neonate) - 1 no. each
- NIBP extension cable - 1 no.
- SD memory card (2 GB) - 1 no.
- Earth cable - 1 no.
- User manual - 1 no.
- Warranty card - 1 no.

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