

TRUSCOPE® elite - A3

8" Modular Patient Monitor



Features

- 8" touchscreen colour TFT LCD display
- Upto 7 lead ECG display (12 lead display optional)
- Total 10 waveform display simultaneously
- 9 different screen configurations
- ST & Arrhythmia analysis
- Drug dose & hemodynamic calculations
- OXY-CRG software
- External video (VGA) output
- 168 hours graphical and tabular trends
- Non - Volatile memory

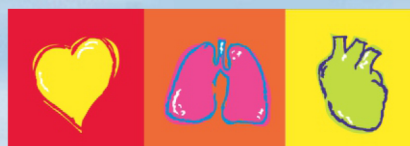
Optional

- Central Monitoring System : Wired / Wi-Fi

Optional modular upgrades

- ETCO₂ (Mainstream / Sidestream / Microstream)
- Multigas monitoring
- Non-Invasive Cardiac Output (ICG)
- 12 lead ECG
- Dual IBP
- Nellcor or Masimo SpO₂
- Wi-Fi module for wireless data transmission
- BIS
- EEG

CE 0123



SCHILLER
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 ₂	✓	✓	✓	✓
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 ₂	✓	✓	✓	✓
2-TEMP	✓	✓	✓	✓
RESP	✓	✓	✓	✓
NIBP	✓	✓	✓	✓
2-IBP	✓	✓		

* Standard Configuration : MPS 3



MPS with Nellcor SpO₂

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

Advanced Modular Monitoring

Nellcor SpO₂



SpO₂ (Nellcor) Module

Measurement range : 0~100%
 Resolution : 1%
 Accuracy :
 - At 70~100%, ±2% (Adult / Pediatric)
 - At 70~100%, ±3% (Neonate)
 - At 70~100%, ±2 % (Low Perfusion)
 - At 0~69%, unspecified
Pulse Rate
 - Measurement range : 20~300 bpm
 - Resolution : 1 bpm
 Accuracy :
 - 20 to 250 bpm : ± 3 bpm
 - 251 to 300 bpm : unspecified

AG



Multigas (Sidestream) (ISA) Module

Measurement method : Infrared spectrum
 Measurement mode : Sidestream
 Measurement parameters : CO₂, N₂O, O₂, agent
 (HAL, ISO, ENF, SEV, DES)

Resolution : 1%
 Unit : %, mmHg
 Measurement and alarm range of AG :

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

Respiration rate range : 0~150 rpm
 Sample flow rate: 50 ml/min ± 10 ml/min

ETCO₂



ETCO₂ (Mainstream) Module

Measurement method : Infrared spectrum
 Measurement range : 0 ~ 15%
 Resolution : 1%
 Unit : %, mmHg, kPa
 Accuracy : ± (0.3%_{ABS} + 4%_{REL})
 Warm up time : < 10 seconds
 Rise time (10 l/m) : ≤ 90 ms
 awRR measurement range : 0 ~ 150 rpm
 awRR measurement accuracy : ± 1 rpm
 Total system response time : < 1 second

ETCO₂ (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

ETCO₂ (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 SpO₂



SpO₂ (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%, ±2 % (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/m² to 125 mL/m²
 - 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/m² to 15.0 L/min/m²
 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, cmH₂O
 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/mmHg, ±2%
 Impedance of transducer : 300~3000 Ω
 Kinds 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-A3

General

Size & Weight

- Size : 278 mm (L) X 192 mm (D) X 250 mm (H)
- Weight : ≤ 4.2 kg
- Standard module slot : 1
- Additional module rack slot : 1

Power supply

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

Display

- 8" Color TFT - LCD
- Resolution : 800 X 600 pixels

Battery

- Type : Rechargeable lithium-ion battery
- Operating time under the normal use and full charge : ≥ 200 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 VGA port
- USB1.1 port : 2
- 12 V DC input : 1 socket
- SD memory card : 2GB
- Analog output (ECG or IBP) : (Option)
- Defibrillator & Cautey Protected

Trend and Reviewing

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

Environment

- Operating temperature : 5°~40° C
- Storage temperature : -20° to +55° C
- Operating humidity : 15% to 85% (non condensing)
- Storage humidity : 10% to 93% (non condensing)
- Operating atmospheric pressure : 700hPa to 1060hPa
- Storage atmospheric pressure : 500hPa to 1060hPa

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, V1,
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 RL)

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

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

Heart Rate

Range : Adult 10~300 bpm

Pediatric and 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 : 0.2~3Ω

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

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, 12 hours

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

Overpressure protection : Yes

Pulse rate range : 40~240 bpm

Digital SpO₂

Measurement range : 0~100%

Resolution : 1%

Accuracy : At 70~100%, ±2%

At 0~69%, unspecified

Pulse Rate

- Measurement range : 25 bpm to 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 ±1° F

Resolution : 0.1° C or 1° F

Unit : Celsius (° C), Fahrenheit (° F)

BIS & EEG (CSM module)

EEG sensitivity : ± 400 μ

Noise : < 2μVp-p, < 0.4 μ 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

Optional modular upgrades

ETCO₂ (Mainstream / Sidestream / Microstream)

Multigas monitoring

ICG (Cardiac output)

12 lead ECG

Dual or 4 IBP

Nellcor or Masimo SpO₂

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 SpO₂ 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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