

TRUSCOPE® elite - A8

17" Modular Patient Monitor



Features

- 17" touchscreen color TFT LCD display
- Upto 7 lead ECG display (12 lead display optional)
- 9 different screen configurations
- ST & Arrhythmia analysis
- Calculation of Drug dose, Hemodynamic, Oxygenation Ventilations, Nephridium, NIBP analyze
- OXY CRG software
- External display (VGA & DVI) output
- 168 hours graphical and tabular trends
- Non - Volatile memory
- Maximum of 10 waveform
- HRV & NIBP analysis
- NIBP groups - 1000 measurements can be saved
- Alarms events group - 500 Arrhythmia + 500 Alarms can be saved
- Availability of 6 USB Port to connect USB device
- Central Monitoring System: Wired

Optional

- Central Monitoring
- Thermal Recorder
- 12 Lead ECG
- Dual IBP
- Dual battery
- Nellcor SpO₂ /Masimo SpO₂

Optional modular upgrades

- EtCO₂ (Mainstream / Sidestream / Microstream)
- Multigas monitoring (Mainstream & Sidestream)
- Non-Invasive Cardiac Output (ICG)
- Invasive Cardiac Output (Thermodilution)
- Dual IBP
- Nellcor or Masimo SpO₂
- BIS
- EEG

EMS (Emergency Mobile Server)

Features

- 3.5" Color TFT LCD touch screen 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



MPS (Multi Parameter Server)

Features

- Standalone monitoring unit – compact & portable
- Seamless patient data transfer to host unit
- NIBP Initiate option
- Alarm Management



EMS/ MPS Configuration	5P+ IBP	5P+ IBP+12L	5P	5P+ 12L
Digital SPO ₂	EMS/MPS 1	EMS/MPS 2	EMS/MPS 3	EMS/MPS 4
Nellcor SPO ₂	EMS/MPS 5	EMS/MPS 6	EMS/MPS 7	EMS/MPS 8
Masimo SPO ₂	EMS/MPS 9	EMS/MPS 10	EMS/MPS 11	EMS/MPS 12

- 📍 5P = ECG+SPO₂+RESP+NIBP+ 2TEMP
- 📍 IBP = DUAL IBP
- 📍 12L = 12 LEAD ECG

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

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%, ±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

AG (Multigas)



Multigas (Sidestream) (ISA OR plus) 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 to 15%	± (0.3 kPa + 4% of reading)
O ₂	0 to 100%	± (2 kPa + 2% of reading)
N ₂ O	0 to 100%	± (2 kPa + 5% of reading)
HAL, ISO, ENF	0 to 8%	± (0.2 kPa + 10% of reading)
SEV	0 to 10%	± (0.2 kPa + 10% of reading)
DES	0 to 22%	± (0.2 kPa + 10% of reading)

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

- Optional**
- ISA AX plus Sidestream without Oxygen Measurement
- IRMA AX plus Mainstream without Oxygen Measurement

Non-Invasive Cardiac Output (ICG)



Non-Invasive Cardiac Output Module (ICG)

- 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

Advanced Modular Monitoring

ETCO₂



ETCO₂ (Mainstream) Module
 Measurement method : Infrared spectrum
 Measurement range : 0 ~ 15%
 Resolution : 1%
 Unit : %, mmHg, kPa
 Accuracy : $\pm (0.3\%_{\text{ABS}} + 4\%_{\text{REL}})$
 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 : $\pm (0.3 \text{ kPa} + 4\% \text{ of reading})$
 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) Lo-flo 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, $\pm 5\%$ of reading
 71 - 100 mmHg, $\pm 8\%$ of reading
 101 - 150 mmHg, $\pm 10\%$ of reading
 (760 mmHg, temperature is 25° C)
 (when RR > 80 rpm, all the range is $\pm 12\%$ of reading)
 Warm up time : Less than 20 secs to 2 mins
 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

Invasive Cardiac Output (Thermodilution)



Invasive Cardiac Output Module (Thermodilution)
 Method : Invasive thermodilution technique
 Measurement range:
 - CO range : 0.1 to 20 L/min
 - CO resolution : 0.1 L/min
 TB: 23.0 ~ 43.0
 TI: -1.0 ~ 27.0
 Resolution:
 TB: 0.1
 TI: 0.1
 Injectate volume : 0 to 10 ml
 Injectate temperature : 1 to 27° C
 Accuracy : $\pm 2\%$

BIS (Bispectral Index)



Bispectral index (BIS), myoelectric activity (EMG), signal quality index (SQI), suppression ratio (SR), break count (BC), total power (TP), and spectral edge frequency (SEF)

Waveform: Single channel EEG

Measurement Range:
 - BIS measurement range is 0~100;
 - EMG measurement range is 30~55dB (bar chart)with intensity between 30 dB and80 dB (tendency chart);
 - SQI measurement range is 0%~100%;
 - SR measurement range is 0%~100%;
 - SEF measurement range is 0.5~30Hz;
 - TP measurement range is 40~100dB; and
 - BC measurement range is 0~30 (only limited to the combined use of an external sensor with a BIS module)

EEG Specification:
 - Input impedance > 5M Ω ;
 - Noise(RTI)< 2uv (0.25~50Hz);
 - Input signal range ± 1 mV; and
 - EEG bandwidth between 0.25 Hz and 110Hz

Advanced Modular Monitoring

Dual IBP



IBP Module

Measurement range : -50~350 mmHg
 Resolution : 1 mmHg
 Unit : mmHg, kPa, cmH₂O
 Accuracy : Static: ± 1 mmHg or $\pm 2\%$, whichever is greater (exclusive of transducer)
 ± 4 mmHg or $\pm 4\%$, whichever is greater (inclusive of transducer)
 Dynamic : ± 4 mmHg or 4%, whichever is greater
 Sensitivity of transducer : 5 μ V/V/mmHg, $\pm 2\%$
 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

EEG



Sampling frequency: 250 dots/s/ channel
 Signal input Range: $\pm 500\mu$ V
 Polarization resistance voltage: ± 320 mV
 Input impedance: 15M Ω (using 10Hz sine wave to test)
 Frequency range: 0.5~30Hz (default), can expand to 0.25~110Hz
 Noise level: 3.0 μ Vp-p(0.5~30Hz)
 CMRR: >80dB (close the power frequency filter ,using 10Hz sine wave to test)
 >105dB (open the power frequency filter, using 50 Hz sine wave to test)
 Leakage current: 10 μ A (using 100V AC signal to test)
 Input protection: 4 kV (defibrillation-proof)

Technical Data

General

Main Unit

- Size : 434 mm (W) X 206 mm (D) X 389 mm (H)
- Weight : 9.68kg with battery
- 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

- 17" Color TFT-LCD
- Resolution : 1280 X 1024 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 : 8 GB
- Analog output (ECG or IBP) : (Option)
- Defibrillator & Cautery protected

Trend and Reviewing

- Trend data : 168 hours
- NIBP measurement reviewing : 1000 groups
- ARR event & Alarm event : 500 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, 10 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)

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-LL); Default: II

Gain : x0.25, x1, x2, x4

Bandwidth: 0.25 Hz to 2.0 Hz (-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 SpO₂

Measurement range : 0~100%

Resolution : 1%

Accuracy : At 70~100%, ±2

At 0~69%, unspecified

Pulse Rate

- Measurement range : 25bpm to 254bpm

- 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 or 0.1° F

Unit : Celsius (°C), Fahrenheit (°F)

Optional modular upgrades

ETCO₂ (mainstream / sidestream / microstream)

Multigas monitoring

Cardiac output (ICG)

12 lead ECG

IBP

Nellcor or Masimo SpO₂

BIS

EEG

Cardiac Output (Thermodilution)

Certification

CE 0123

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 (8 GB) - 1 no.
- Earth cable - 1 no.
- User manual - 1 no.
- Warranty card - 1 no.

Accessories shown are not part of standard configuration All registered trademarks acknowledged.

Technical data are subject to change without notice

SCHILLER

The Art of Diagnostics

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