



## C80 Multi-Parameters Patient Monitor

### General Specification

#### Configuration

Standard: 3/5/12-lead ECG,RESP,Temp,SPO2,NIBP,PR,  
Optional: Dual-IBP, EtCO<sub>2</sub>, AG, C.O., M.SPO<sub>2</sub>, N.SPO<sub>2</sub>, ICG  
BIS

#### Power Supply

AC input voltage: 100-240V~, 50/60Hz  
Built-in battery (Standard) : 2200mAh, at least 2 consecutive hours.  
Built-in battery (Optional) : 4400mAh, at least 4 consecutive hours

#### Display

Dimension: About 344mm×291 mm×165mm  
Weight: About 3.9kg(with battery)  
Display: 12.1 Inch touch screen  
Waveforms: maximum 8 waveforms display  
Resolution: 800×600

#### Environmental Specifications

Environment temperature: 5°C ~ 40°C  
Relative humidity: ≤ 93%  
Atmospheric pressure: 700hPa ~ 1060hPa

#### Indicator

Alarm indicator lights, Power indicator light, Battery indicator light,  
QRS beep and alarm sound, Operating key sound

#### External interface

Parameter cable interface, AC power input socket, USB port  
RJ45 port, Multifunction port, VGA port, Equipotential

### Technique Specification

#### Data Review and Storage

NIBP storage: 2000 groups

Alarm storage: 200

Trend table/graph: 160hrs

Full disclosure waveform: 48h

Power-off Protection

#### ECG Specifications

Lead type: 3-lead, 5-lead or 12-lead selectable

Lead selection:

3-lead (I, II, III), 1- channel

5-lead (I, II, III, avR, avL, avF, V), 2 -channel

12-lead (R, L, F, N, C1, C2, C3, C4, C5, C6 or RA, LA, LL, RL, V1, V2, V3, V4, V5, V6); 2-channel

HR measurement range:

Adult: 15~300bpm

Neonate/child: 15~350bpm

Accuracy: ±1% or ±1bpm, whichever is greater.

ST measurement range: 2.0mV~+2.0mV (-20.0 mm~+20.0 mm)

Arrhythmia: 26 calls

Waveform speed: 6.25mm/s, 12.5mm/s, 25 mm/s, 50 mm/s

Gain selection: 1.25, 2.5, 5.0, 10, 20, 40mm/mV, Auto.

Pacemaker detection: Yes

Protection: Against electrosurgical interference and defibrillation.  
Bandwidth:

Surgery mode: 1 Hz ~ 20 Hz (-3.0dB ~ +0.4dB);

Monitoring Mode: 0.5 Hz ~ 40 Hz (-3.0dB ~ +0.4dB);

Diagnosis mode: 0.05Hz ~ 150 Hz (-3.0dB ~ +0.4dB);

ST mode: 0.05Hz ~ 40Hz(-3.0dB ~ +0.4dB)

ECG analog output

Common mode rejection: <1mV (p-v RTI)

#### Non-invasive Blood Pressure(NIBP)

Method: Auto oscillation method

Parameters: SYS/DIA/MAP/Pulse Rate

Operating mode: Manual/Auto/STAT  
 Auto measure intervals: 1/2/2.5/3/4/5/10/15/30/60/  
 90/120/180/240/480/720min  
 Units: mmHg/kPa  
 Cuff pressure range: Adult: 80~280;  
 Child: 80~210;  
 Neonate: 60~140  
 Measurement and alarm range:  
 SYS: (adult) 5.3-36kPa (40-270mmHg)  
 (Child) 5.3-26.7kPa (40-200mmHg)  
 (Neonate) 5.3-18kPa (40-135mmHg)  
 DIA: (adult) 1.3-28.7kPa (10-215mmHg)  
 (Child) 1.3-20kPa (10-150mmHg)  
 (Neonate) 1.3-13.3kPa (10-100mmHg)  
 MEAN: (adult) 2.7-31.3kPa (20-235mmHg)  
 (Child) 2.7-22kPa (20-165mmHg)  
 Accuracy:  $\pm 0.1$ kPa or  $\pm 1$ mmHg, whichever is greater.  
 PR measurement range: 40 bpm - 240 bmp  
 Accuracy:  $\pm 2$  bpm or  $\pm 2$  %, whichever is greater  
 Over-pressure protection: Yes

### Resp Specifications:

Measurement method: Thoracic impedance  
 Measurement range: Adult: 0 - 120 rpm  
 Child/neonate: 0rpm-150rpm  
 Accuracy: 7rpm~150rpm:  $\pm 2$ rpm or  $\pm 2$ %, whichever is greater.  
 0rpm~6rpm: not defined.  
 No breath alarm delay: 10s、15s、20s、25s、30s、35s、40s、  
 45s、50s、55s、1min、Off

### SpO2 Specifications

Measurement range & Accuracy:  
 Comen SpO2:  
 accuracy: 0%~100%;  
 $\pm 2$ % (adult/child, in non-motion state) or  
 $\pm 3$ % (neonate, in non-motion state) within  
 the measurement range of 70%~100%.  
 Masimo SpO2:  
 accuracy: 1%~100%;  
 $\pm 2$ % (adult/child, in non-motion state),  
 $\pm 3$ % (adult/child, in motion state) or  
 $\pm 3$ % (neonate, in motion or non-motion state)  
 within the measurement range of 70%~100%.  
 Nellcor SpO2:  
 accuracy: 0%~100%;  
 $\pm 2$ % (adult/child, in non-motion state) or  
 $\pm 3$ % (neonate, in non-motion state) within  
 the measurement range of 70%~100%.

The measurement accuracy within the measurement range  
 of 1%~69% is not defined.

### Perfusion index (PI):

Range for Masimo SpO2 and Comen SpO2: 0.02%~20%;  
 accuracy: not defined.  
 Resolution: 0.01% (within 0.02%~9.99% range)  
 or 0.1% (within 10.0%~20.0% range).

### PR Specifications

Measurement range and accuracy:  
 Comen SpO2: 20bpm~254bpm; resolution: 1bpm;  
 Masimo SpO2: 25bpm~240bpm; resolution: 1bpm;  
 Nellcor SpO2: 20bpm~300bpm; resolution: 1bpm;

### Temp Specifications

Measurement range: 0°C~50°C  
 Accuracy:  $\pm 0.1$ °C  
 Number of channels: 2

### CO2 Specifications

Masimo EtCO2 sensor (mainstream):  
 CO2 measurement range:  
 0mmHg~190mmHg, 0~25% (at 760mmHg)  
 CO2 resolution: 1mmHg, 0.1kPa or 0.1%  
 CO2 accuracy: 0~15%:  $\pm(0.2\%+\text{reading}\times 2\%)$   
 15~25%: not defined  
 Masimo EtCO2 sensor (sidestream):  
 CO2 measurement range:  
 0mmHg~190mmHg, 0~25% (at 760mmHg)  
 CO2 resolution: 1mmHg, 0.1kPa or 0.1%  
 CO2 accuracy: 0~15%:  $\pm(0.2\%+\text{reading}\times 2\%)$   
 15~25%: not defined  
 Respironics/Nmed/Palconn EtCO2 sensor (mainstream)  
 CO2 measurement range:  
 0~150mmHg 0%~19.7% (0~20.0kPa)  
 CO2 resolution: 0~69mmHg: 0.1mmHg  
 70~150mmHg: 0.25mmHg  
 CO2 accuracy: 0~40mmHg:  $\pm 2$ mmHg  
 41~70mmHg:  $\pm 5\%\times \text{reading}$   
 71~100mmHg:  $\pm 8\%\times \text{reading}$   
 101~150mmHg:  $\pm 10\%\times \text{reading}$   
 Respironics/Nmed/Palconn EtCO2 sensor (side stream)  
 CO2 measurement range:  
 0~150mmHg 0%~19.7% (0~20.0kPa)  
 CO2 resolution: 0~69mmHg: 0.1mmHg  
 70~150mmHg: 0.25mmHg  
 CO2 accuracy: 0~40mmHg:  $\pm 2$ mmHg  
 41~70mmHg:  $\pm 5\%\times \text{reading}$   
 71~100mmHg:  $\pm 8\%\times \text{reading}$   
 101~150mmHg:  $\pm 10\%\times \text{reading}$

### IBP Specifications

Channels: 2  
 Measurement range: -1.3kPa~+40kPa(-50mmHg~+300mmHg)  
 Resolution: 0.1kPa or 1mmHg  
 Accuracy:  $\pm 1$ mmHg or  $\pm 2$ %, whichever is greater .

### Recording Specifications

Recording paper width: 50mm  
 Paper speed: 25/50 mm/s  
 Number of waveforms: 3

### C.O. Specifications

C.O. measurement range: C.O.: 0~20L/min  
 BT: 25~43°C  
 IT: 0~25°C  
 Resolution: C.O.: 0.1L/min  
 BT, IT: 0.1°C  
 Accuracy: C.O.:  $\pm 5$ % or  $\pm 0.1$ L/min, whichever is greater.  
 BT, IT:  $\pm 0.1$ °C (excluding the sensor)

## AG Specifications

AG measurement method:	Infrared radiation absorption 8) characteristics
AG preheating time:	<20s
AG measurement range and accuracy:	
CO2:	0%~15%,±(0.2kPa+reading×2%); 15%~25% Not defined.
N2O:	0~100 %,±(2kPa+reading×2%)
Hal, Enf, Iso:	0~8 %,±(0.15 %+reading×5%); 8~25 %, Not defined.
Sev:	0~10 %,±(0.15 %+reading×5%); 10~25 %, Not defined.
Des:	0~22%,±(0.15 %+reading×5%); 22~25 %, Not defined.
O2:	0~100 %,±(1%+reading×2%)
RR:	0~254rpm, ±1rpm
AG resolution:	CO2: 1mmHg awRR: 1rpm
AG gas name:	CO2, O2, N2O, one of the five anesthetic gases (Enf, Iso, Sev, Hal or Des)

## BIS Specifications

BIS measurement range and accuracy:	
BIS:	0-100; accuracy: 1%.
SQL:	0-100%; accuracy: 1%.
EMG:	0~100dB; accuracy: 1%.
ESR:	0~100%; accuracy: 1%

## ICG Specifications

ICG measurement method:	Indirect impedance cardiography measurement
Measurement range:	HR: 40~250bpm SV: 5~250mL C.O.:1.4~15L/min
Measurement accuracy:	SV: not defined. HR: ±2bpm. C.O: no defined. Resolution: SV: 0.1ml HR: 1bpm C.O: 0.1L/min

COMEN, one of the leading medical device manufacturers in China, and admitted to be the quickest developing company in medical industry.

COMEN design and produce medical devices for OR, NICU, and ICU. The product range covers Anesthesia devices, Monitoring & diagnostic products, Infant incubators, ventilators, medical pendants, operation light, all designed with specific patient data managing system to link-in to multiple medical database. Based in Shenzhen - the hi-tech "headquarter" of China, COMEN has 30 branch offices operating business in China and 8 international branch offices in: USA, Russia, Turkey, Mexico, Thailand, India, Malaysia and Indonesia.

With all over 50,000 install bases in hospitals and medical centers globally, COMEN products are accepted and favored with its friendly design and excellent performance.

Specifications subject to change without notice

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# PATIENT MONITOR C86

## SPECIFICATIONS

User interface: 15" colour TFT Touch Screen with trim knob & quick access keys

Standard configuration: ECG, Resp., SpO<sub>2</sub>, NIBP, PR, 1 Temp

Optional configuration: 2 Temp, 2 IBP, EtCO<sub>2</sub>, Cardiac Output, ICG, Thermal Recorder

12 waveforms

Up to 2.5 hours battery back-up

Calculation packages: Drugs & Hemodynamics, Ventilation, Oxygenation & Renal

Networking: Option of wired or wireless networking

# SPECIFICATIONS

## STANDARD CONFIGURATION

3/5 lead ECG, RESP, Comen SpO<sub>2</sub>, NIBP, 1 Temp

## OPTIONAL CONFIGURATION

2 Temp, 2 IBP, EtCO<sub>2</sub>, Cardiac Output, Impedance Cardiography (ICG), BIS, Thermal Recorder

## SAFETY STANDARDS

ISO 13485:2003 approved, CE marking according to MDD93/42/EEC

## PHYSICAL CHARACTERISTICS

**Product Size:** 349.1mmx302.6mmx108.5mm  
**Weight:** 4.2kg

## OPERATION ENVIRONMENT

**Temperature:** 5-40°C  
**Humidity:** ≤93%  
**Power supply:** 100-240V~, 50/60Hz ± 1Hz  
**Battery type:** Rechargeable plug & Lithium-ion battery  
**Battery capacity:** 2200mAh  
**Battery recharging Time:** Maximum 3.5 hours for charging  
**Battery working time:** Up to 2.5 hours for continuous working  
**Display:** 15" color TFT touch screen  
**Resolution:** 1024x768  
**Trace:** 12 waveforms  
**Night Mode Available**

## INDICATOR

Dual alarm indicator  
Power indicator  
Battery indicator  
QRS beep and alarm sound  
Operating key sound

## DATA STORAGE

**Alarm event recall:** 500 groups (120hours)  
**Wave recall:** 6 hours  
**NIBP recall:** 2000 groups  
**Trend graph:** 120 hours  
**Trend table:** 120 hours  
**Power-off storage alarm:**  
User-adjustable High and Low Prioritized audible and visual alarm 3-level Limits  
**Network:** Connected to Central Monitoring System by hardware/wireless

## RECORDER

**Type:** Built-in thermal array  
**Channel:** 3 channel wave forms  
**Speed:** 25mm/s, 50mm/s  
**Record width:** 50mm

## TEMPERATURE (Dual Channel)

**Range:** 0-50°C (32 to 122°F)  
**TEMP sensor:** Skin/rectal TEMP sensor  
**Resolution:** 0.1°C  
**Accuracy:** ±0.1°C (Exclusive of error of sensor)  
**Channel:** T1, T2, TD (Temperature Difference)

## ECG

### Lead type:

CardioTec™ 5-leads ECG Analysis, 12-Lead and 3-lead selectable  
12-lead cable: I; II; III; aVR; aVL; aVF; V1-V6  
5-lead cable: RA; LA; RL; LL; V or R; L; N; F; C  
3-lead cable: Lead selection: RA; LA; LL or R; L; F

### Lead selection:

12-Lead I; II; III; aVR; aVL; aVF; V1-V6,  
5-lead: I; II; III; aVR; aVL; aVF; V, 3-lead: I; II; III

**Gain selection:** X0.125, X0.25, X0.5, X1, X2, X4, auto

**Sweep speed:** 6.25, 12.5, 25, 50mm/s

### Heart rate range:

Adult: 15-300 bpm  
Pediatric/Neonate: 15-350bpm

**Resolution:** 1 bpm

**Protection:** Withstand 4000VAC/50Hz voltage in isolation; electro-surgical interference and defibrillation

**Accuracy:** ±1% or ±1bpm (whichever is greater)

### Bandwidth :

MON Mode: 0.5 Hz~40 Hz  
DIA Mode: 0.05Hz~130 Hz  
OPE Mode: 1 Hz~20 Hz  
ST Mode: 0.05Hz~40Hz

**ST detection:** -2.0mV~+2.0mV (Automatic)

**Arrhythmia analysis:** 16 Types

## RESPIRATION

**Method:** Thoracic impedance

### RR measurement range:

Adult: 0-120rpm,  
Pediatric/Neonate: 0-150rpm

**Resolution:** ±1 rpm

### RESP apnea alarm:

10s-60s (Adult); 10-20s (Pediatric/Neonate)  
Audible and visual alarm; alarm events recallable

**Sweep speed:** 6.25, 12.5, 25mm/s

**Gain selection:** X0.25, X0.5, X1, X2, X3, X4

## IBP

**Channel:** 2 Channels

**Measured pressure:** ART, PA, CVP, RAP, LAP, ICP, P1, P2

**Measurement range:**

ART: 0~300mmHg

PA: -6~120 mmHg

CVP: -10~40mmHg

RAP: -10~40mmHg

LAP: -10~40mmHg

ICP: -10~40mmHg

P1, P2: -50~300mmHg

**IBP accuracy:**  $\pm 2\%$  or  $\pm 1$ mmHg, (whichever is greater)

**Alarm range:** -50mmHg~300mmHg

## NIBP

**Method:** Automatic oscillometric

**Work mode:** Manual / Automatic / Continuous

**Auto measure time:** Adjustable (1- 480 min)

**Measurement Unit:** mmHg / Kpa selectable

**Measurement types:** Systolic, Diastolic, Mean

**Range of systolic pressure:**

Adult Mode: 40-270mmHg

Pediatric Mode: 40-200mmHg

Neonate Mode: 40-135mmHg

**Range of diastolic pressure:**

Adult Mode: 10-215mmHg

Pediatric Mode: 10-150mmHg

Neonate Mode: 10-100mmHg

**Range of mean pressure:**

Adult Mode: 20-235mmHg

Pediatric Mode: 20-165mmHg

Neonate Mode: 20-110mmHg

**Over-pressure protection:** Both hardware and software over pressure protection

**Accuracy:** Less than  $\pm 5$ mmHg

**Resolution:** 1mmHg

**Alarm:** Systolic, Diastolic, Mean

**PR from NIBP:** 40-240 bpm

## CARDIAC OUTPUT (C.O.)

**Method:** Thermodilution

**Range:**

C.O.: 0.1-20 L/min

BT: 25-43°C

IT: 0-25°C

**Resolution:**

C.O.: 0.1 L/min

BT, IT: 0.1°C

**Accuracy:** C.O.:  $\pm 5\%$  or  $\pm 0.1$  L/min, (whichever is greater); BT, IT:  $\pm 0.1$ °C (no sensor)

**Alarm range:**

BT Hi limit: (LO limit +0.1) ~ 43°C

BT Lo limit: (Hi limit-0.1) ~ 25.0°C

**Step:** 0.1°C

## COMEN SpO<sub>2</sub>

**Measurement & alarm range:** 0~100%

**Resolution:** 1%

**Accuracy:**

$\pm 2\%$  (70~100%, Adu/Ped, non-motion)

$\pm 3\%$  (70-100%, Neo, non-motion)

Unspecified (0-69%)

**Alarm range: 0~100%**

**PR measurement**

Range: 25-254 bpm

Resolution: 1 bpm

Accuracy:  $\pm 2$  bpm

## NELLCOR SpO<sub>2</sub>

**Measurement & alarm range:** 0-100%

**Resolution:** 1%

**Accuracy:**  $\pm 2\%$  (70-100%, MAX-A, MAX-AL,

MAX-N, MAX-P, MAX-I and MAX-FAST sensors);

$\pm 3\%$  (70-100%, D-YS, DS-100A, OXI-A/N and

OXI-P/I sensors); 0-69% unspecified

**PR measurement**

Range: 20-300 bpm

Resolution: 1bpm

**Accuracy:**  $\pm 3$ bpm (20-250 bpm); Unspecified (251-300 bpm)

**Alarm range:** 20-300 bpm

## MASIMO SpO<sub>2</sub>

**Measurement & alarm range:** 0~100%

**Resolution:** 1%

**Accuracy:**  $\pm 2\%$  (70-100%, Adu/Ped, non-motion);

$\pm 3\%$  (70-100%, Neo, non-motion);  $\pm 3\%$  (70-100%,

motion) Unspecified (0-69%)

**Alarm range:** 1~100%

**PR measurement**

Range: 25~240 bpm

Resolution: 1bpm

**Accuracy:**  $\pm 3$ bpm (non-motion);  $\pm 5$ bpm (motion)

**Alarm range:** 25~240 bpm

## COMEN EtCO<sub>2</sub> (Sidestream and Mainstream)

**Range:** 0 -152 mm Hg, 0 to 20%

**Accuracy:**  $\pm 2$  mmHg (0 - 40 mmHg);  $\pm 5\%$  of

reading (41 - 70 mmHg);  $\pm 8\%$  of reading (71

-100 mmHg);  $\pm 10\%$  of reading (101 -152 mmHg)

**awRR range:** 2-150 bpm

**awRR accuracy:**  $\pm 1$  bpm

## RESPIRONICS EtCO<sub>2</sub> (Sidestream and Mainstream)

**Range:** 0 -150 mm Hg, 0 to 79%, 0 to 20kPa (@ 760mmHg)

**Accuracy:**  $\pm 2$  mmHg (0 - 40 mmHg);  $\pm 5\%$  of

reading (41 - 70 mmHg);  $\pm 8\%$  of reading (71

-100 mmHg);  $\pm 10\%$  of reading (101 -150 mmHg)

**awRR range:** 0-150 rpm

**awRR accuracy:**  $\pm 1$  rpm

## MASIMO EtCO<sub>2</sub> (Sidestream and Mainstream)

**Range:** 0 -190 mm Hg, 0 to 25% (@ 760mmHg)  
**Accuracy:** 0 mmHg-114 mmHg:  $\pm 1.52$  mmHg+2%;  
114 mmHg -190 mmHg: Not specified  
**AwRR range:** 0-150rpm  
**AwRR accuracy:**  $\pm 1$ rpm  
**Response time:**  
**MasimoEtCO<sub>2</sub> (Sidestream):** <3s (2 meter  
sampling line)  
**MasimoEtCO<sub>2</sub> (Mainstream):** <1s

## IMPEDANCE CARDIOGRAPHY (ICG)

**Method:** Thoracic Bio-impedance measurement  
**Range:** SV: 0-250 ml/b  
HR: 40-250 bpm  
C.O.: 0-30 L/min  
**Accuracy:** SV: unspecified  
HR:  $\pm 2$  bpm  
C.O: unspecified  
**Alarm range:** CI: HI (LO+0.1) -15.0 L/min/m<sup>2</sup>  
LO: 0 - (HI+ 0.1) L/min/m<sup>2</sup>  
TFC: HI (LO+1) -150/K $\Omega$   
**Alarm deviation:**  
LO: 10 - (HI-1) K $\Omega$   
CI:  $\pm 0.1$  L/min/m<sup>2</sup>  
TFC:  $\pm 1$  K $\Omega$

## BIS

**Measurement range:**  
BIS: 0-100  
SQI: 0-100%  
EMG: 25dB-100dB SR: 0-100%  
**Alarm range:**  
Upper limit: 2-100  
Lower limit: 0-98



Call our toll free number 1800-209-9003  
or write to us at [teamgehc@ge.com](mailto:teamgehc@ge.com)  
[www.gehealthcare.in](http://www.gehealthcare.in)