



progetti
Medical Equipment Solutions

PG S30 & PG S50

Semi-modular Patient Monitor



Designed to be used for monitoring, displaying, reviewing, storing and alarming of multiple physiological parameters of patients, including ECG, Heart Rate (HR), Respiration Rate (RR), Temperature (Temp), Pulse Oxygen Saturation (SpO2), Pulse Rate (PR), Carbon dioxide (CO2), Anesthetic Gas (AG), Non-invasive Blood Pressure (NIBP), Invasive Blood Pressure (IBP), Cardiac output (C.O.).



Thanks to their high resolution color TFT LCD display, PG S30 (10.4" version) and PG S50 (12.1" version) take under control physiological data and store it in the trend. Reliable acoustic and visual alarms, nurse call connector system in hospital and easy data management through wired network connector or Wi-Fi connection with the central monitoring system, USB-interface or SD Memory card (option).



MONITOR



PG S30 & PG S50

TECHNICAL SPECIFICATIONS



Display

PG S50: 12.1" / PG S30: 10.4" Color TFT LCD
Resolution: 800X600 pixels

Battery

Type: rechargeable Lithium battery, 11.1V/4.0Ah
Operating time under the normal use and full charge: ≥ 210 minutes

Power supply

Power voltage: AC 100-240V 50/60Hz
Input current: 1.1 ~ 0.5A
Safety class: category I

Size and Weight

Size: 318mmx264mmx152mm
Weight: ≤ 4.5 kg
Standard module slot: 2

Recorder (Option)

Method: thermal dot array
Paper width: 50mm (1.97 in)
Paper length: 15m
Paper speed: 12.5/25/50 (mm/sec)
Traces: maximum 3 tracks
Recording way: real-time recording, periodic recording, alarm recording

Input device

Touch screen: standard config.
Knob: standard config.
Mouse input support
Keyboard input support

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

System output & extensible interfaces

Ethernet Network: 1 standard RJ45 socket
Defibrillation Output: 1 BNC connector
Nurse call: 1 RJ11 connector
Video output: 1 VGA port
USB 1.1 port: 2
SD memory card: 2G (option)
Analog Output (ECG or IBP): option

Trend and reviewing

Trend: long trend: 168 hours minimum resolution is 5s
1 min (store when power goes off)
High resolution trend: 2h minimum resolution is 5s

NIBP measurement reviewing: 1000 groups
ARR event: 128 groups of ARR event and the associated waveform
Alarm events: 128 groups of parameter alarm events and associated parameter waveform at the alarm moment
Full disclosure waveform: 96 hours for 3 waveforms (with 4G SD card)

Environment

Operating temperature: 0 ~ +40°C
Storage temperature: -20°C to +50°C
Operating humidity: 15% to 85% (non condensing)
Storage humidity: 10% to 93% (non condensing)
Operating atmospheric pressure: 860hPa to 1060hPa
Storage atmospheric pressure: 500hPa to 1060hPa
Safety
IEC60601-1 approved, CE marking according to MDD93/42/EEC

PERFORMANCES

ECG

Lead mode: 3-leads ECG input; 5-leads ECG input;
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: 2.5mm/mV(x0.25), 5mm/mV(x0.5), 10mm/mV(x1); 20mm/mV(x2), 40mm/mV(x4), Auto
CMRR: monitor mode ≥ 105 dB; surgery mode

≥ 105 dB; diagnostic mode ≥ 90 dB

Frequency response (-3dB): monitor mode 0.5~40Hz; surgery mode 1~25Hz; diagnostic mode 0.05~150Hz
Input impedance: ≥ 5.0 M Ω
ECG signal range: ± 10.0 mV
Electrode offset potential: ± 500 mV
Patient leakage current: < 10 μ A

Standardizing signal: 1 mV $\pm 5\%$
Baseline recovery: < 5 s after Defibrillation.(Mon or Surg mode)

Indication of electrode separation: every electrode (exclusive of RL)
Protection: breakdown voltage 4000VAC 50/60Hz, defibrillator proof
Sweep speed: 12.5mm/s, 25mm/s, 50mm/s

HR

Range: Adult 10~300 bpm;
Pediatric & Neonate: 10~350 bpm
Refreshing time: ≤ 50 bpm per 2 pulses;
50~120 bpm per 4 pulses;
 ≥ 120 bpm per 6 pulses
Resolution: 1 bpm

Accuracy: $\pm 1\%$ or ± 1 bpm, whichever is greater

ST Segment

Measurement range: -2.0mV~2.0mV
Accuracy: -0.8mV~0.8mV; ± 0.02 mV or $\pm 10\%$ whichever is greater. Over ± 0.8 mV unspecified
Resolution: 0.01mV

RESP

Method: thoracic impedance
Lead selected from: I (RA-LA) or II (RA-LL).
Default I
Gain: x0.25, x1, x2, x4
Bandwidth: 0.25Hz to 2GHz (-3dB)
Sweep speed: 6.25mm/s, 12.5mm/s, 25mm/s
Measurement range: 0~150 rpm
Resolution: 1rpm

Accuracy: ± 2 rpm or 2% whichever is greater
Delay of apnea alarm: 10s, 15s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s

TEMP

Max channel: 6
Measurement way: thermal resistance way
Measurement range: 0.0°C~50.0°C (32°F~122°F)
Accuracy: $\pm 0.1^\circ\text{C}$ or $\pm 1^\circ\text{F}$ (exclusive of probe)
Resolution: 0.1°C or 1°F
Unit: Celsius (°C), Fahrenheit (°F)

NIBP

Way of measurement: automatic oscillometry
Range of measurement:
Adult: SYS 30~270 mmHg; DIA 10~220mmHg;
MAP 20~235 mmHg
Child: SYS 30~235 mmHg; DIA 10~220mmHg;
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: $\pm 2\%$ or $\pm 3\%$ mmHg whichever is greater
Clinical: $\pm 5\%$ 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: keep 5 minutes, at 5 seconds interval

Overpressure protection: hardware and software double protections
Pulse rate range: 40~240bpm

SpO2 Digital technic

Measurement range: 0~100%
Resolution: 1%
Accuracy: at 70~100%, $\pm 2\%$; at 40~69%, $\pm 3\%$; at 0~39% unspecified

PR

Measurement range: 25~254 bpm
Resolution: 1 bpm
Accuracy: $\pm 1\%$ or ± 1 bpm, whichever is greater

Masimo SpO2 (option)

Measurement range: 0~100%
Resolution: 1%
Accuracy: at 70~100%, $\pm 2\%$ (adult/pediatric, non motion condition);
at 70~100%, $\pm 3\%$ (neonate, non motion condition);
at 70~100%, $\pm 3\%$ (motion condition);
at 0~69% unspecified
Average time: 2-4s, 4-6s, 8s, 10s, 12s, 14s, 16s

PR

Measurement range: 25~240 bpm
Resolution: 1 bpm
Accuracy: ± 3 bpm (non-motion condition);
 ± 5 bpm (motion condition)

Nellcor SpO2 (option)

Measurement range: 0~100%
Resolution: 1%
Accuracy: at 70~100%, $\pm 2\%$ (Adult/Pediatric);
at 70~100%, $\pm 3\%$ (Neonate);
at 0~69% unspecified

PR

Measurement range: 20~300 bpm
Resolution: 1 bpm
Accuracy: 20 bpm to 250 bpm, ± 3 bpm;
251 bpm to 300 bpm unspecified

IBP (Option)

Max channel: 6
Measurement way: directly invasive pressure
Sensitivity of transducer: 5uV/V/ mmHg ± 2
Impedance of transducer: 300 to 3000 Ω
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
Transducer sites: Arterial pressure (ART);
Pulmonary artery pressure (PA); Left atrium pressure (LAP); Right atrium pressure (RAP);
Central venous pressure (CVP); Intracranial pressure (ICP); P1/P2

Selection of measurement range:
ART: 0 ~ +350mmHg

PA: -10 ~ +120mmHg
CVP/RAP/LAP/ICP: -10 ~ +40 mmHg
P1/P2: -50 ~ +350mmHg

EtCO2 Mainstream (Option)

Measure method: infrared spectrum
Warm up time: Capnogram displayed in less than 15 seconds. At an ambient temperature of 25°C, full specification within 2 minutes

Measurement range: 0~19.7% (0~150 mmHg)
Resolution: 1 mmHg
Rise time: (10l/min): ≤ 60 ms
Unit: %, mmHg, kPa

CO2 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
(at 760mmHg, ambient temperature of 35°C)
awRR measurement range: 0~150 rpm
awRR measurement accuracy: ± 1 rpm

EtCO2 Sidestream (Option)

Measure method: infrared spectrum
Measurement range: 0.0~13.1% (0~99.6 mmHg)
Resolution: 1mmHg
Unit: %, mmHg, kPa
Accuracy: 0% to 4.9%, $\pm 0.3\%$ (± 2.0 mmHg)
5.0% to 13.1%, $\pm 10\%$ of the reading
Measurement range of awRR: 3~150 rpm
Calibration: offset calibration: auto, manual, gain calibration

EtCO2 Microstream (Option)

Measure method: infrared spectrum
Warm up time: Capnogram displayed in less than 20 seconds. At an ambient temperature of 25°C, full specification within 2 minutes
Measurement range: 0~19.7% (0~150 mmHg)
Resolution: 1 mmHg
Unit: %, mmHg, kPa
CO2 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
(at 760mmHg, ambient temperature of 25°C)
(when RR>80 rpm, all the range is $\pm 12\%$ of reading)

CO2 response time: <3s

awRR measurement range: 2~150 rpm
awRR measurement accuracy: ± 1 rpm
Sample flow rate: 50ml/min ± 10 ml/min

Anesthetic Gas (option)

Measure method: infrared spectrum
Measure mode: mainstream or sidestream
Fi and Et values: CO2, N2O, O2, AG (HAL, ISO, ENF, SEV, DES)
Resolution: 1%

Unit: %

Calibration: room air calibration performed automatically when charging airway adapter (<5 sec)
Warm-up time: <10s full accuracy within 1 min

Measurement and alarm range of AG

Gas	Range	Accuracy
CO2	0-10% $\pm 0.3\%$ ABS+4%REL	
N2O	0-100% $\pm 2\%$ ABS+8%REL	
O2	10-100% $\pm 2\%$ ABS+2%REL	
HAL, ISO, ENF	0-5% $\pm 0.2\%$ ABS+10%REL	
SEV	0-8% $\pm 0.2\%$ ABS+10%REL	
DES	0-18% $\pm 0.2\%$ ABS+10%REL	

awRR measurement range: 0~150 rpm

awRR measurement accuracy: ± 1 rpm

Rise time: (flowing speed 10l/min) CO2 ≤ 90 ms;

O2 ≤ 300 ms; N2O ≤ 300 ms;

HAL, ISO, ENF SEV, DES ≤ 300 ms

Total system response time: <1 seconds

C.O. (Option)

Measurement mode: thermal dilution method
Measurement Wave: thermal dilution curve
Measurement parameters: C.O., TB, TI, C.I.
Measurement range: C.O.: 0.1 L/min ~ 20 L/min

TB: 23.0 ~ 43.0°C

TI: -1.0 ~ 27.0°C

Resolution: C.O.: 0.1 L/min; TB: 0.1°C; TI: 0.1°C

Accuracy: C.O. 2% SD; TB, TI: $\pm 0.1^\circ\text{C}$

TB Alarm range: 23.0 ~ 43.0°C, high/low limit can be adjusted continuously.

STANDARD CONFIGURATION

- Main Unit;
- PG S50: 12.1" / PG S30: 10.4" TFT-LCD display
- 2 standard module slot
- Touch screen
- 1 RJ45 ethernet socket
- 1 defibrillation output
- 1 Nurse call socket
- 2 USB 1.1 port
- USB compatible mouse and keyboard
- 11.1V/4.0AH Rechargeable Lithium battery
- Other options: external Display, Wireless Lan, Extensive Memory card, Analog output (ECG or IBP), 3 channel thermal recorder, rolling stand, wall mount

OTHER OPTIONS

- 5 ecg leads Cable
- Temp Module
- Spo2 Module
- Nibp Module



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ISO 13485:2016 CERTIFICATION

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Quality system ISO certified

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