



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 (optional)

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

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: < 3 s

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: < 10 s full accuracy within 1 min

Measurement and alarm range of AG

Gas Range Accuracy

CO2 0-10% $\pm (0.3\% \text{ ABS} + 4\% \text{ REL})$

N2O 0-100% $\pm (2\% \text{ ABS} + 8\% \text{ REL})$

O2 10-100% $\pm (2\% \text{ ABS} + 2\% \text{ REL})$

HAL, ISO, ENF 0-5% $\pm (0.2\% \text{ ABS} + 10\% \text{ REL})$

SEV 0-8% $\pm (0.2\% \text{ ABS} + 10\% \text{ REL})$

DES 0-18% $\pm (0.2\% \text{ ABS} + 10\% \text{ REL})$

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