

9 Technical Specifications



Unless otherwise specified, the data refer to a temperature of 25 °C.

9.1 MAGLIFE Serenity

Dimensions	442 x 452 x 310 mm (w x h x d)
Weight	approx. 23 kg
Protection case	IP20
Environmental conditions	
For operation	10 ... 30 °C (only for use in air-conditioned rooms with a regulated temperature of + 20 °C ± 5 °C) atmospheric pressure 700 to 1060 hPa
For storage and transport	-10 ... 50 °C; relative humidity at 0...95% (noncondensing) atmospheric pressure 500 to 1060 hPa
Mains power	
Protection class	I
Rated voltage range	230 / 115 VAC, 50/60 Hz version for Japan: 100 VAC, 50/60 Hz
Power consumption	approx. 55 VA
Instrument fuses	315 mA (T) 250 VAC (230 VAC), 500 mA (T) 250 VAC (115 VAC) version for Japan: 630 mA (T) 250 VAC (100 VAC)
Battery power	
Battery 1	sealed lead battery, 12 V, 17 Ah
Operating time	6 hours
Battery charging	automatic when monitor connected to power line and turned off
Recharging indicator	indicator
Low battery indication	screen message
Recharging time	10 hours
Battery 2	sealed lead battery, 12 V, 4 Ah
Operating time	90 min
Battery charging	automatic when monitor connected to power line
Recharging indicator	indicator
Low battery indication	screen message
Recharging time	10 hours (monitor on), 5 hours (monitor off)

9.2 MAGSCREEN Serenity

Dimensions	450 x 398 x 260 mm (w x h x d)
Weight	approx. 12 kg
Protection case	IP20
Environmental conditions	
For operation	10 ... 40 °C (only for use in air-conditioned rooms with a regulated temperature of +20 °C ± 5 °C) atmospheric pressure 700 to 1060 hPa
For storage and transport	-10 ... 50 °C; relative humidity at 0...95% (noncondensing) atmospheric pressure 500 to 1060 hPa
Power	
Protection class	I
Rated voltage range	100 VAC - 240 VAC, 50/60 Hz
Power consumption	approx. 60 VA

9.3 LCD Screens

Screen	type: VGA, TFT technology size: 12.1 inches 128 colors 800 x 600 pixels
Sweep speed	25 mm/s and 50 mm/s
Deflection direction	from left to right
Waveform freeze	with pushbutton
Backlighting	cold cathode fluorescent lamp

9.4 Alarms

Physiological and technical alarms	visual and audible signalling alarms can be paused for 2 minutes or permanently disabled; if permanently disabled, the monitor beeps every 2 minutes
Priorities	physiological alarm (if several modules send alarms at the same time) technical alarm (if the same module sends several alarms)
Frequency of the audio alarm signal	1000 Hz and 2000 Hz
Alarm delay	4 s (8 s at power-up)

9.5 ECG Signal

Signal input	type CF (defibrillation-proof) signal acquisition by ECG sensor with optical wave guide leads I, II, III common mode rejection > 80 dB electrode problem detection patient leakage current < 10 μ A
Recovery time after defibrillation	3.5 s
Band pass	0.5 Hz to 40 Hz (-3 dB) w/o. filter; 0.5 Hz to 22 Hz (-3 dB) with filter
Heart rate measuring range	30 to 250 bpm
Accuracy of the heart rate readout	5 bpm, if T-wave < 0.8 x R-wave (measurement according to AAMI EC13)
Heart rate readout in the presence of irregular ECG signals	measurement according to AAMI EC13: test signal trace a: 90 bpm b: 90 bpm c: 119 bpm d: 90 bpm
Response time	2.5 s between 40 and 80 bpm in an ascending or descending phase (measurement according to AAMI EC13)
Sweep speed	25 mm/s and 50 mm/s
Calibration	1-mV pulse (on screen and printout)
Sensitivity	0.25 - 0.5 - 1 - 2 cm/mV
QRS indication	by audible and visual signals

9.6 Pulse

Signal input	connection for SpO ₂ sensor with optical wave guide, type CF applied part (defibrillation-proof)
Measuring method	spectrophotometric
Sensitivity	automatic gain adjustment
Averaging	over 8 s or 16 s
Measuring range	30 to 250 bpm
Error	5 bpm

9.7 SpO₂

Signal input	connection for SpO ₂ sensor with optical wave guide, type CF applied part (defibrillation-proof)
Measuring method	spectrophotometric
Sensitivity	automatic gain adjustment
Averaging	over 8 or 16 beats
Measuring range	0- 99 %
Error	± 1 % between 90 and 100 % + 3 % between 81 and 89 % + 5 % between 55 and 80 %

9.8 CO₂

Signal input	connection for sample line, type CF applied part (defibrillation-proof)
Measuring method	spectrophotometric
Sensitivity	3 gain factors: 50, 75, 100 mmHg
Measuring range	EtCO ₂ : 0 to 270 mmHg (0 to 12.6 kPa) MinCO ₂ : 0 to 270 mmHg (0 to 12.6 kPa) respiration rate: 2 to 100 resps/min
Error	EtCO ₂ : ± 0.5 % abs. max. MinCO ₂ : ± 0.5 % abs. max. respiration rate: ± 1 resp/min

9.9 N₂O

Signal input	connection for sample line, type CF applied part (defibrillation-proof)
Measuring method	spectrophotometric
Measuring range	0 to 950 mmHg
Error	± 3 % abs. max.

9.10 Anesthetic Agents

Signal input	connection for sample line, type CF applied part (defibrillation-proof)
Measuring method	spectrophotometric
Choice of anesthetic agents	isoflurane halothane enflurane sevoflurane desflurane
Measuring range	0... 30 %
Error	isoflurane: ± 0.2 % abs. max. halothane: ± 0.2 % abs. max. enflurane: ± 0.2 % abs. max. sevoflurane: ± 0.4 % abs. max. desflurane: ± 1 % abs. max.
Resolution	0.01 %

9.11 O₂

Measuring method	with measuring cell
Signal input	connection for sample line, type CF applied part (defibrillation-proof)
Measuring range	0... 100 %
Error	+ 4 % abs. max.
Resolution	1 %

9.12 Non-invasive Blood Pressure

Measuring method	oscillometric
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Measuring range	Adults/children: 10 to 290 mmHg Neonates: 5 to 145 mmHg
Signal input	type CF applied part (defibrillation-proof)
Recovery time after defibrillation	5 s
Error	± 3 mmHg
Measuring range	adults/children: systolic pressure: 30 to 255 mmHg diastolic pressure: 15 to 220 mmHg mean pressure: 20 to 235 mmHg neonates: systolic pressure: 30 to 135 mmHg diastolic pressure: 15 to 110 mmHg mean pressure: 20 to 125 mmHg In the adult mode the blood pressure measured with this device corresponds to the value determined by a trained user with stethoscope and cuff (within the limits specified by the <i>American National Standard</i> in " <i>Electronic or automated sphygmomanometers</i> "). In the neonatal mode the blood pressure measured with this device corresponds to the value determined with an invasive blood pressure measurement device (within the limits specified by the <i>American National Standard</i> in " <i>Electronic or automated sphygmomanometers</i> "). The data can be obtained from SCHILLER MEDICAL SA.

9.13 Invasive Blood Pressure

Signal input	type CF applied part (defibrillation-proof)
Measuring range	0 to 300 mmHg
Zero	automatic
Error	4 mmHg
Resolution	1 mmHg
Adjustment range	30 - 60 - 150 - 300 mmHg
Band pass (-3 dB)	0 to 10 Hz (w/o. filter)

9.14 Temperature

Signal input	connection for fibre optic probe, type CF applied part (defibrillation-proof)
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Sensor application	on the skin surface
Measuring method	optical interferometry
Error	± 0.3 °C
Measuring range	20 to 45 °C
Resolution	0.1 °C

9.15 Recorder

Type	writer with high-resolution thermal print head
Paper	Z-fold pad, width 70 mm, length 14 m
Paper speed	25 mm/s
Resolution	vertical: 8 dots/mm horizontal: 32 dots/mm
Print speed	horizontally: 10 characters/s
Start	single recordings initiated by key press; automatic recordings upon alarm
