



Summary

The 92518 Multigas Module monitors gas concentrations and alerts clinical personnel when the concentration of anesthetic agents, oxygen, carbon dioxide, or nitrous oxide falls outside of defined limits. The anesthetic agent being administered is automatically identified.



Features

Measurement of Respiration Rate, Carbon Dioxide, Oxygen, Nitrous Oxide, and Anesthetic Agents	Up to two agents may be simultaneously detected; inspired and expired values for halothane (HAL), isoflurane (ISO), enflurane (ENF), sevoflurane (SEV), desflurane (DES); inspired and expired values for N ₂ O and O ₂ ; inspired CO ₂ (I CO ₂) and end tidal CO ₂ (EtCO ₂)
Automatic Features	Identification of agents; pressure and temperature compensation
Suspend Mode	Allows module to remain warmed up between cases while sampling is turned OFF
MAC/AGEMAC Values	Automatic MAC value calculation and AGEMAC adjustment based on patient age and body temperature
Paramagnetic Oxygen Sensor	Oxygen concentration is measured using a paramagnetic oxygen sensor <i>Note:</i> Module use is restricted to one patient at a time.

Product Specifications

Physical Dimensions	
Height	11.3 cm (4.7 inches)
Depth	17.84 cm (17.43 inches)
Width	5.6 cm (2.33 inches)
Weight	1.026 kg (2.26 pounds)
Carbon Dioxide	
Range	0 to 113 mmHg (0 to 15 kPa), 0 to 15%
Resolution	1 mmHg (0.1 kPa), 0.1%



Measurement Rise Time	<250 msec typically
Accuracy	±(0.2 vol% +2% of reading)
Values	I CO ₂ , EtCO ₂ , and instantaneous CO ₂
Gas Gross Effect	<0.2% (O ₂ , N ₂ O, anesthetic agents)
	<p>Notes:</p> <ul style="list-style-type: none"> • mmHg values for CO₂ are based on an ambient barometric pressure of 760 mmHg • Helium typically decreases CO₂ readings by <0.6 vol%
Oxygen	<p>FiO₂ and ETCO₂ are displayed after one breath and have a continuously updated breath average. ET will typically decrease below nominal value (ETnom) when respiration rate (RR) exceeds the RR threshold (RRth) according to the following formulas:</p> <ul style="list-style-type: none"> • CO₂: $ET = ET_{nom} \times 70RR$ for RRth >70 • N₂O, O₂, DES, ENF, ISO, SEV: $ET = ET_{nom} \times 50RR$ for RRth >50 • HAL: $ET = ET_{nom} \times 35RR$ for RRth >35 <p>Measured at I/E ratio 1:1 using breath simulator according to EN ISO 80601-2-55 fig. 201.101.</p>
Range	0 to 100%
Accuracy	±(1 vol% +2% of reading)
Measurement Rise Time	<450 msec typically
Values	Inspired oxygen (FiO ₂), expired oxygen (FeO ₂), and instantaneous O ₂
Gas Gross Effect	<2 vol% N ₂ O, <1 vol% anesthetic agents
Nitrous Oxide	
Range	0 to 99%
Resolution	5%
Accuracy	±(2 vol% +2% of reading)
Measurement Rise Time	<350 msec typically
Values	Inspired nitrous oxide (I N ₂ O), expired nitrous oxide (E N ₂ O), and instantaneous N ₂ O
Gas Gross Effect	<2 vol% anesthetic agents
Anesthetic Agent	
Ranges	<p>HAL, ENF, ISO – 0 to 99%</p> <p>SEV – 0 to 8%</p> <p>DES – 0 to 20%</p>
Resolution	0.1%
Accuracy	±(0.15 vol% +5% of reading)
Measurement Rise Time	<350 msec typically



Values	Inspired agents (I HAL, I ENF, I ISO, I SEV, I DES) and expired agents (E HAL, E ENF, E ISO, E SEV, E DES), and instantaneous agents
Gas Gross Effects	<0.15 vol% N ₂ O
Agent Identification	
Identification Threshold	0.15 vol% typical
Identification Time	<20 seconds (for pure agents)
Identification Threshold for Two Agents	0.2 vol% +10% of total concentration
MAC	
Range	0 to 9.9
Resolution	0.1
Accuracy	Depends on accuracy of expired N ₂ O and expired anesthetic agent readings
AGEMAC	
	Determined by the age and body temperature of the patient; if more than one temperature value is available, the higher value is used
Range	0 to 9.9
Resolution	0.1
Accuracy	Depends on accuracy of expired N ₂ O and expired anesthetic agent readings
	<i>Note:</i> Measured values are shown as ATPD (ambient temperature and pressure, dry gas).
Respiratory Rate	
	Measurement based on CO ₂ waveform; breath detection is based on a 1% change in CO ₂ level. Measured at I/E ratio 1:1 using breath simulator according to EN ISO 80601-2-55 fig. 201.101.
Range	1 to 95
Resolution	±1 BPM
Apnea Time Out	
Range	20 to 45 seconds
Resolution	5 seconds
Accuracy	±1 second
Warm Up	<20 seconds for concentration reporting, automatic agent identification, and full accuracy specification
Sample Line Flow Rates	50 ml/min ±10 ml/min
Compensation	Automatic for atmospheric pressure, CO ₂ -O ₂ , and CO ₂ -N ₂ O collision broadening effect



CO ₂ Waveform Scales	Selectable at 0 to 120 mmHg, 0 to 100 mmHg, 0 to 80 mmHg, 0 to 60 mmHg, 0 to 40 mmHg (0 to 15 kPa, 0 to 12.5 kPa, 0 to 10 kPa, 0 to 7.5 kPa, 0 to 5 kPa), 0 to 15%, 0 to 12.5%, 0 to 10%, 0 to 7.5%, 0 to 5%
O ₂ and NO ₂ Waveform Scales	Selectable at 0 to 100%, 0 to 80%, 0 to 60%, 0 to 40%, 0 to 20%
Anesthetic Agent Waveform Scales	
HAL, ISO, ENF	0 to 5%, 0 to 4%, 0 to 3%, 0 to 2%, 0 to 1%
SEV	0 to 8%, 0 to 6%, 0 to 4%, 0 to 2%, 0 to 1%
DES	0 to 20%, 0 to 15%, 0 to 10%, 0 to 5%, 0 to 2.5%
Waveform Speed	Selectable at 25, 12.5, 6.25, 3.12, 1.56 mm/second
Parameter Units	%, mmHg (kPa) for CO ₂ ; % for O ₂ , N ₂ O, and agents; BPM for respiration rate
Alarms	User-selectable; respiration rate, inspired and expired N ₂ O, inspired and expired agents, EtCO ₂ , FiO ₂ , and FeO ₂ (high and low values monitored), I CO ₂ (high values monitored), and apnea time out; all alarms default to OFF
Gas Calibration	Calibration from external gas mixture
Occlusion	Automatically detects and attempts to clear sample line occlusions
Agent Mix Detected	Status message shows when a mixture of more than two agents is detected.
Suspend Sampling	In Suspend mode, sensors continue to operate but pumps stop and waveform and numeric zones are cleared, allowing sensors to remain warmed up.
Module Parameter Count	When computing parameter capacity, this module counts as two to four parameters.
Total System Response Time	<4 seconds (with 2-meter Nomoline sampling line)

Monitor Compatibility

Monitors Supported	<p>qube™</p> <p>XPREZZON™</p> <p>Ultraview SL™ SL2400 (91369), SL2600 (91370), SL2700 (91387-27), SL2800 (91387-28)</p> <p>Ultraview® UCW® (90385)*</p> <p>Ultraview 1700 (90387)*</p> <p>Ultraview 1500 (90363)</p> <p>Ultraview 1600 (90364)</p> <p>Ultraview 1050 (90369)</p> <p>Ultraview 1030 (90367)</p> <p>*The 92518 Multigas Module does not support any UCW or Ultraview monitors with S/N below 387-1xxxxx.</p>
Monitors Not Supported	<p>Ultracare SLP100, PC2 (90305)</p> <p>PC1 (90303), PCX (90308)</p> <p>PC Scout® (90309)</p>



Classifications

MDD	Class IIb
EN 60601-1, Class I	Type CF defibrillator proof; device is not affected by patient defibrillation. Rated for continuous operation
CISPR11, Group 1, Class B	Suitable for use in establishments connected to a low-voltage supply network, which supplies building used for domestic purposes.

Electrical Specifications

N/A (Module using host power only)

Certifications

ASTM 1456, 1462, 1463; ISO 11196 (in lieu of ASTM 1452); CSA Z168-6, Z9918.

Environmental Requirements

Storage

Temperature	-40° to 70° C (-40° to 158° F)
Humidity	95% (non-condensing) relative humidity (RH)
Altitude	0 to 12,192 meters (0 to 40,000 feet)

Operating

Temperature	10° to 40° C (50° to 104° F)
Humidity	95% (non-condensing) relative humidity (RH)
Altitude	395 to 903 mmHg

Documentation

Bedside, Central, and Telemetry Systems Operations Documents CD-ROM
(P/N 084-1101-xx)

Spacelabs Healthcare Service Documents CD-ROM
(P/N 084-0700-xx)

Spacelabs Healthcare Supplies and Accessories Catalog
(sa.spacelabshealthcare.com)

Regulatory Approvals



CSA certified. Meets IEC 60601-1, CAN/CSA C22.2 No. 60601-1, and ANSI/AAMI ES60601-1 for electrical safety, and ISO 80601-2-55 for respiratory gas monitors.



CE marked in accordance with the Medical Device Directive 93/42/EEC.



Does not contain hazardous substances — Europe



Does not contain hazardous substances — China

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