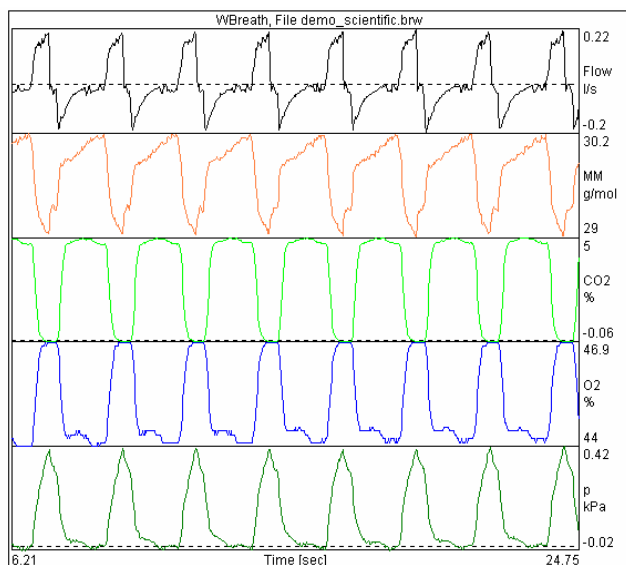


SPIROWARE® "Add on Tools"

The "all in one" solution for pulmonary function testing



Your advantage:

Integrated respiratory function testing in accordance to ATS / ERS standards

Exhaled nitric oxide analysis

Tidal breath analysis

FRC measurement

Occlusion maneuver (Shutter)

Forced in- and expiratory maneuver

Capnography

Oxygraphy

ATS / ERS recommended records



The SPIROWARE® "Add on Tools" is an integrated software package to measure and record respiratory data. Simultaneous measurement and display of various parameters like: NO, CO₂, Oxygen, flow rate and volume of the in- and exhaled breath. The powerful software tool creates the "graphical user interface" and features breath gas analysis and lung function tests. All measurements, calculations and records are in accordance to the ATS and ERS standards for respiratory function testing.

Flow and Volume

High precision of flow rates and volume calculation independent of gas composition, turbulence, humidity or temperature of the respiratory flow. The application range covers prematures to adults. The high flow resolution and sampling frequency allows measurement even during high frequency ventilation. The patented ultrasonic flow measurement guarantees highest precision.

Nitric Oxide (F_ENO)

The fast response and low detection limit of 0.06 ppb (60 ppt, parts per trillion) enables precise measurement of inhaled and exhaled nitric oxide levels. Quality control for nitric oxide application and easy detection of inflammatory processes in the lung.

Capnography (CO₂)

The mainstream infrared self-calibrating system for breath by breath CO₂ waveform analysis and dead space calculation. In combination with spirometry and a fast oxygen analyzer it may be used for metabolic calculations.

Oxygraphy (O₂)

Fast and precise laser technology for in- and expiratory measurement of oxygen concentration in the respiratory gas flow. The measurement of the breath by breath oxygen respiration waveform is giving a qualitative indication of ventilation and cardiac output. In combination with spirometry and a fast CO₂ analyzer it may be used for metabolic calculations.

FRC Measurement

The functional residual capacity (FRC) measurement is one of the most important parameters for the assessment of the critical ill lung (ARDS / IRDS) or lung growth in spontaneous breathing neonates and prematures. The flexible system allows various techniques, like: SF₆ or helium and multiple washin / washout maneuvers.

Occlusion Maneuver (Shutter)

Single occlusion technique as a basis for lung mechanics calculation in spontaneous breathing patients. The occlusion maneuver is a high precise and easy to operate method.

Raised Volume and Compression Maneuvers (Squeeze)

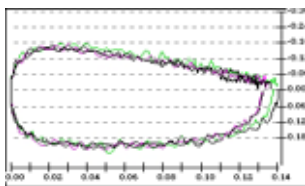
Spirometry for infants; up to now it was not possible to measure in- and expiratory reserve volumes (IRV/ERV) at infants. The RV-RTC maneuver allows a complete measurement of spontaneous breathing patients. In combination with the FRC maneuver an entire spirogram can be performed.

ATS / ERS recommended Records

Pre-programmed records in accordance to ATS / ERS recommendations or custom specific recording may be used for patient history record, validation of medical treatment, screening and quality control. The SPIROWARE® software program with it's "Add on Tools" enables easy data exchange due to HTML and EXCEL data format.

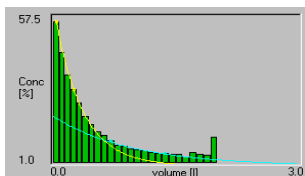
Specifications SPIROWARE® "Add on Tools"

Tidal breathing (TBFVL)



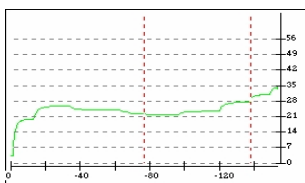
Breath selection filter: Automatic or user selectable
Volume range: 0.6 ml – 20 l*
Resolution: 0.6; 1 ml*
Flow range: ± 0.5; 1.5; 16 l/s*
 *Value depends on flow head (small, medium, large)

Functional residual capacity measurement (FRC)



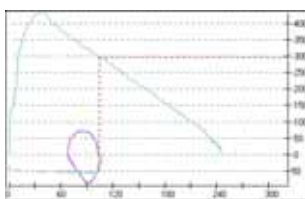
Method: Multiple washin / washout maneuver (SF₆, Oxygen, Helium)
Flow control: continuous flow up to 250 ml/s (infants) demand valve (children and adults)
Application: Spontaneous breathing patients only

Exhaled nitric oxide (FENO)



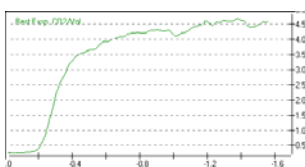
Breath selection filter: Automatic or user selectable
Range: 0.1 - 5000 ppb
Min. detect. conc.: 0.06 ppb*
Response time: < 100 ms*
Linearity: ± 1 % of full scale
 *Depends on sample tube (110 or 330 ml/min)

Raised volume – compression technique (RV-RTC)



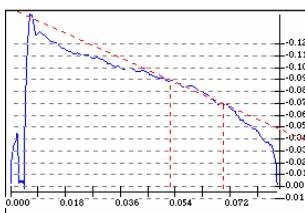
Control: Manual or automatic (flow triggered)
Jacket sizes: 4
RV pressure: Adjustable 0 - 30 mbar
RTC pressure: Adjustable 0 - 120 mbar
Jacket rise time: < 100 ms

Capnography (SBCO2)



Principle: Main stream, self calibrating
Range: 0-99 mmHg, 0-14 %, 0-14 kPa
Response time: < 100 ms
Accuracy: ±2 mmHg (0-40 mmHg)
 ±5 % of reading (41-76 mmHg)
 ±10 % of reading (77-99 mmHg)

Single occlusion technique (SOT)



Lung mechanics measurement
Modes of operation: Manual or automatic (flow triggered)
Closing time: 50 - 1500 ms
Response time: < 10 ms

System Requirements

Pentium 3 type processor or higher, Microsoft Windows XP and Internet Explorer (V4.0 or higher), RS232 interface 16Mbyte of RAM, 10MB of free disk space, XGA or better graphic adapter, CD- and 3.5" disk drive

ECO MEDICS reserves the right to change these specifications without notice, documentation in English language only
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