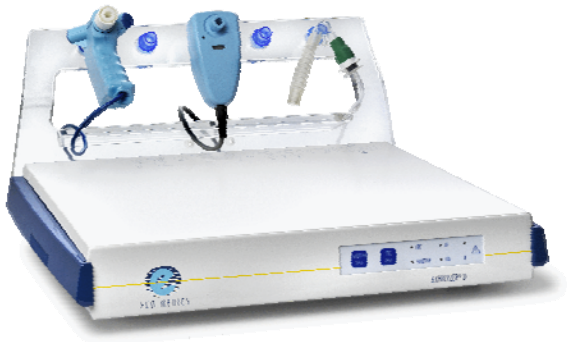
EXHALYZER D

Paediatric pulmonary function testing system for neonate to school age patients



Your advantage:

Integrated system for paediatric pulmonary function testing

Optional FRC / LCI measurement (SF_6-, Helium or N_2 - washout)

Optional Resistance and compliance measurement (Shutter)

Optional calorimetry

Upgradeable

ECO MEDICS AG, specialist in innovative gas analysis systems for respiratory measurement and medical science, introduces the 3rd EXHALYZER generation. The first digital state of the art lung function testing device for prematures, neonates and pediatric patients. The compact system incorporates all elements of a fully-equipped instrument to exceed your highest expectations.

Main features at a glance

EXHALYZER®D, a unique system for continuous, simultaneous measurement and display of various pulmonary function parameters even on non cooperative prematures, neonates and pediatrics. The combination of flow, volume and pressure measurement with optional modules for: capnography, oximetry, exhaled nitric oxide, FRC / LCI measurements and airway occlusion (lung mechanics) facilitating an integrated assessment of the patient.
The system is capable to perform all lung function test procedures as described in the book "Infant Respiratory Function Testing" (1), Paediatric Pulmonary Function Testing (2) and in the ATS / ERS standards (1).

FRC Pre-School Set up

1) J. Stocks, P.D. Sly, R.S. Tepper, W.J. Morgan. Infant respiratory function testing. Wiley-Liss, New York 1996
2) J. Hammer, E. Eber; Paediatric Pulmonary Function Testing. Karger, Basel 2005.
2) Bates J, Schmalisch G, Filbrun D, Stocks J, Tidal breath analysis for infant pulmonary function testing. Eur Respir J 2000; 16: 1180 – 1192

The new digital ultra sonic flow meter:

Digital is a synonym for highest precision. The patented ultrasonic transit-time measurement technique, a benchmark in precise flow and volume measurement, enters the 2100 century. The sampling frequency of 200 Hz and small technical dead space enables applications on smallest prematures.

Changes in the gas composition, turbulence, humidity or temperature of the respiratory flow do not influence the accuracy of measured flow and volume. Exchangeable dead space reducers guarantee always highest resolution for the measurement and adaptation to the patient. Even the best can be improved.

"SPIROWARE 3.x" with SQL database:

The PC based software-package of the EXHALYZER®D, which allows the operator to measure and record data obtained during tidal breathing or for one selected breath cycle of the patient.
On the basis of standard or user-specified criteria the software selects the most suitable data set and displays graphics combined with patient data. Pre-programmed records in accordance to ATS / ERS standards or custom specific recording may be used, validation of medical treatment, and screening.

EXHALYZER D:

Optional and upgradeable system for measuring flow, volume, FRC / LCI, lung mechanics, ins- and expiratory volumes, CO_2, O_2 and nitric oxide, enables accurate determination of the patient pulmonary condition.

Specifications EXHALYZER D

Flow and pressure measurement

Flow range:	± 0.5 l/s (DSR small) ± 1.5 l/s (DSR medium) ± 8 l/s (DSR large)
Volume resolution:	0.6 / 1 ml
Accuracy:	± 2 %
Dead space:	1.9 ml (DSR small) 7.2 ml (DSR medium) 20 ml (DSR large)
Resistance:	< 0.15 kPa/ 0.5 l/min
Sampling frequency:	200 Hz

FRC / LCI infant measurement (option)

Principle:	SF_6 / He washin / washout
Application:	spont. breathing
Cont. flow:	adjust. up to 250 ml/s

Nitrogen washout FRC module (option)

Principle:	N_2 washout by 100 % O_2
Maneuvers:	Single and multiple breath tests
Application:	spont. breathing
Cont. flow:	up to 1250 ml/s

NO measurement (option)

Measurement range:	0.1 to 5000 ppb
Detection limit:	0.06 ppb *
Rise time (T90):	< 100 ms
Sampling rate:	10 Hz
Sample flow rate:	select. 110 or 330 ml/min *

CO_2 measurement (option)

Principle:	Mainstream, self calibrating
Measurement range:	0 to 14 % 0 to 14 kPa
Accuracy:	2 mmHg (0 to 40 mm Hg) 5 % of read. (> 40 mmHg) 10 % of read. (> 77 mmHg)
Rise time (t90):	100 ms

Oxygen measurement (option)

Principle:	Side stream, laser diode
Measurement range:	2 to 100 %
Resolution:	0.01 %
Accuracy:	0.3 %
Rise time (t90):	100 ms
Sampling frequency:	100 Hz
Sample flow:	200 ml/min

Airway occlusion module (option)

Modes of operation:	Automatic (flow triggered), manual
Response time:	< 10 ms
Closing time:	select. 50 to 1500 ms
Pressure range:	-120 to 120 mbar

General

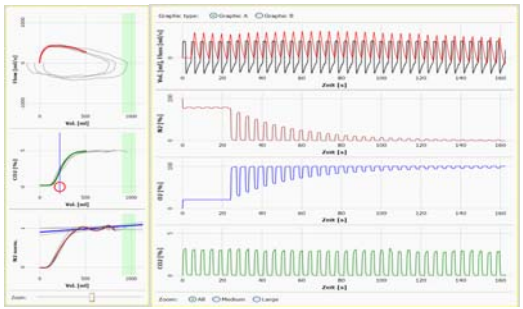
Temperature range:	5–40 °C
Humidity tolerance:	5–95 % rel. humidity (non-condensing)
Supply voltage:	100 - 240 V, 50/60 Hz
Power required:	850 VA max.
Data interface:	RS 232 (standard)
Data acquisition:	SPIROWARE® 3.x
Weight (basic module):	10 kg
All options	80 kg (w/o PC and printer)
Dimensions (h x w x d):	1170 x 550 x 800 mm 46 x 21.7 x 31.5 inch

System requirements

Pentium 3 Processor or better, Microsoft Windows XP with SP3, VISTA or WIN 7, .NET Framework 3.5 with SP1 or higher, 16MByte RAM, 10MB free space on hard disk, XGA-Graphics or better, USB 1.0 or higher

(Note: PC, Printer, calibration gases and zero-air supply are not part of our delivery).

* depending on sample flow



Nitrogen Washout Test

ECO MEDICS reserves the right to change these specifications without notice. Manufactured by ECO PHYSICS CE 0483

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