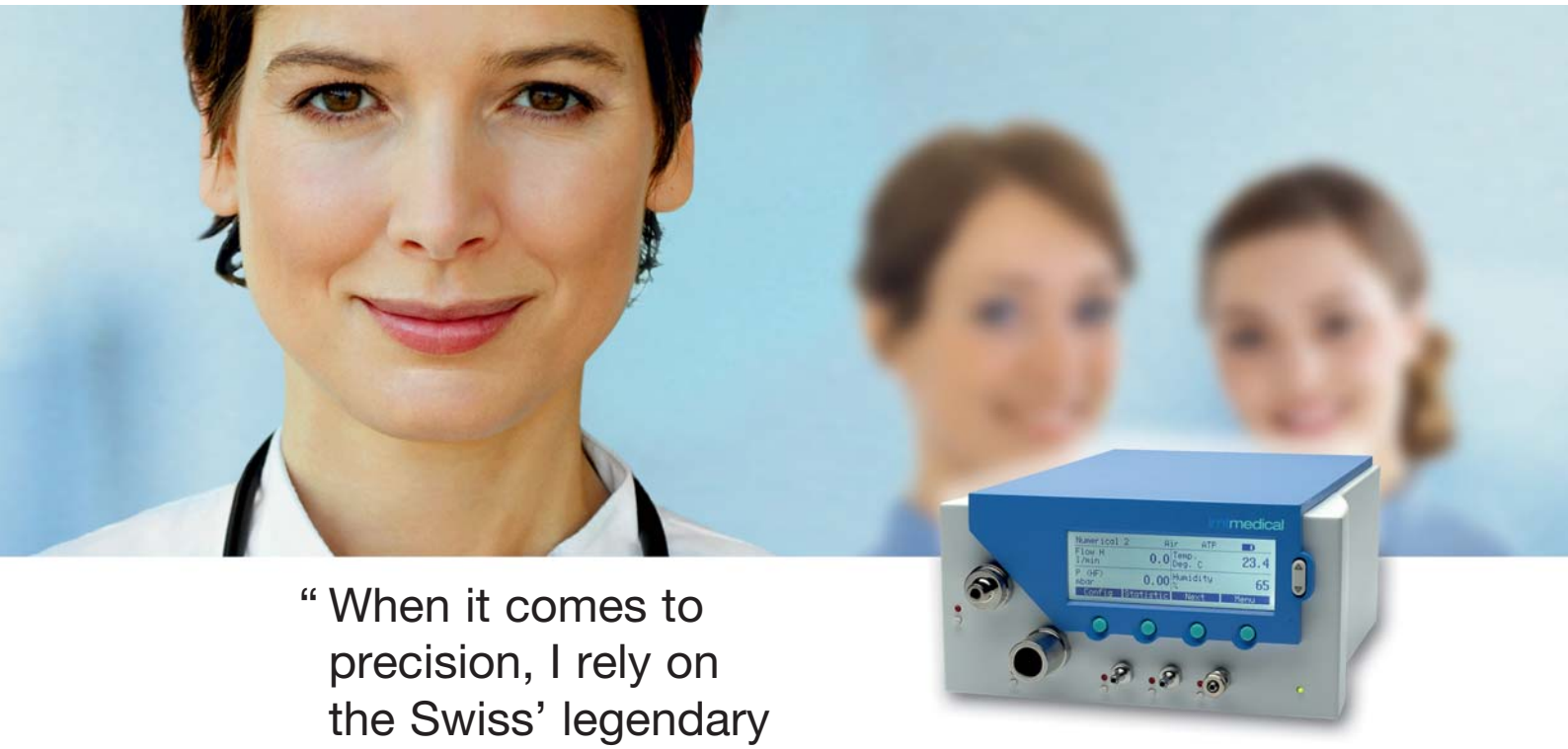
FlowAnalyser™ Product Line



“ When it comes to precision, I rely on the Swiss’ legendary devotion to detail.”

imtmedical

FlowAnalyser™
Three measuring and calibration tools for various applications.

FlowAnalyser™
PF-300
The standard model for universal applications.

FlowAnalyser™
PF-301 VAC
Includes an additional sensor for vacuum measurements up to +/-1 bar.

FlowAnalyser™
PF-302 LOW
Includes an additional sensor measuring minimal pressures up to 5 mbar.

Nowadays, decisions are often based on information provided by medical and industrial equipment. But who guarantees that the data delivered is accurate? Measuring your pneumatic equipment for reliability and precision with a dependable calibration tool is critical in avoiding fatal errors. Precision and reliability are exactly what the FlowAnalyser Product Line provides. The FlowAnalyser measures flow, pressure, temperature, humidity and O_2 concentrations bi-directionally. The one-of-a-kind Adult, Pediatric and High Frequency ventilation measuring modes make the FlowAnalyser the ideal calibration tool for all ventilators, anaesthesia machines and spirometers. The FlowAnalyser distinguishes itself from other calibration tools by combining a simple, intuitive multilingual user interface with the most precise sensor technology. With the push of a button, all measured values can be stored directly on the FlowAnalyser and later retrieved for documentation purposes. FlowLab software complements the FlowAnalyser by offering a wide range of graphical analysis capabilities. Swiss devotion to detail at its best.

Accessories

FlowAnalyser™ Adapter-Set

The Adapter-Set assists in connecting the test object to the FlowAnalyser. The smallest possible dead space, as well as minor differences in the cross-section dimension of the flow current help increase measurement accuracy. This Adapter-Set is included, free of charge, in your FlowAnalyser purchase.

FlowAnalyser™ Carrying Case

The FlowAnalyser case provides protection and order at work. This robust case includes storage space for your FlowAnalyser, Adapter-Set, bacteria filter, power & USB cord, FlowLab software CD and user manual.

MultiGasAnalyser™ OR-703 (optional)

The MultiGasAnalyser OR-703 measures all anaesthesia and breathing gases and is the smallest multi-gas sensor in the world. It includes the most modern Microsystems technology and has a direct data interface with the FlowAnalyser. Key Features include complete data collection and test reports.

SmartLung™ Adult & SmartLung™ Infant test lungs (optional)

The most intelligent and cost-effective test lungs that safely tests ventilators and anaesthesia machines for function and precision. Variable patient parameters such as resistance, compliance or airway leakage can all be adjusted independently. The SmartLung is also extremely handy and user-friendly.

The Basics: Simplicity, Reliability and Accuracy.

Bidirectional Flow Measurement
Two measuring canals evaluate flow, pressure, temperature, humidity and O_2.

Respiratory Parameters
16 respiratory parameters can be calculated including PEEP, Vti and Compliance.

Pressure Measurements
All pressure information included with up to 6 different pressure sensors.

Data Storage
Memorize internally all measured and respiratory parameters in order to simplify the testing procedure.

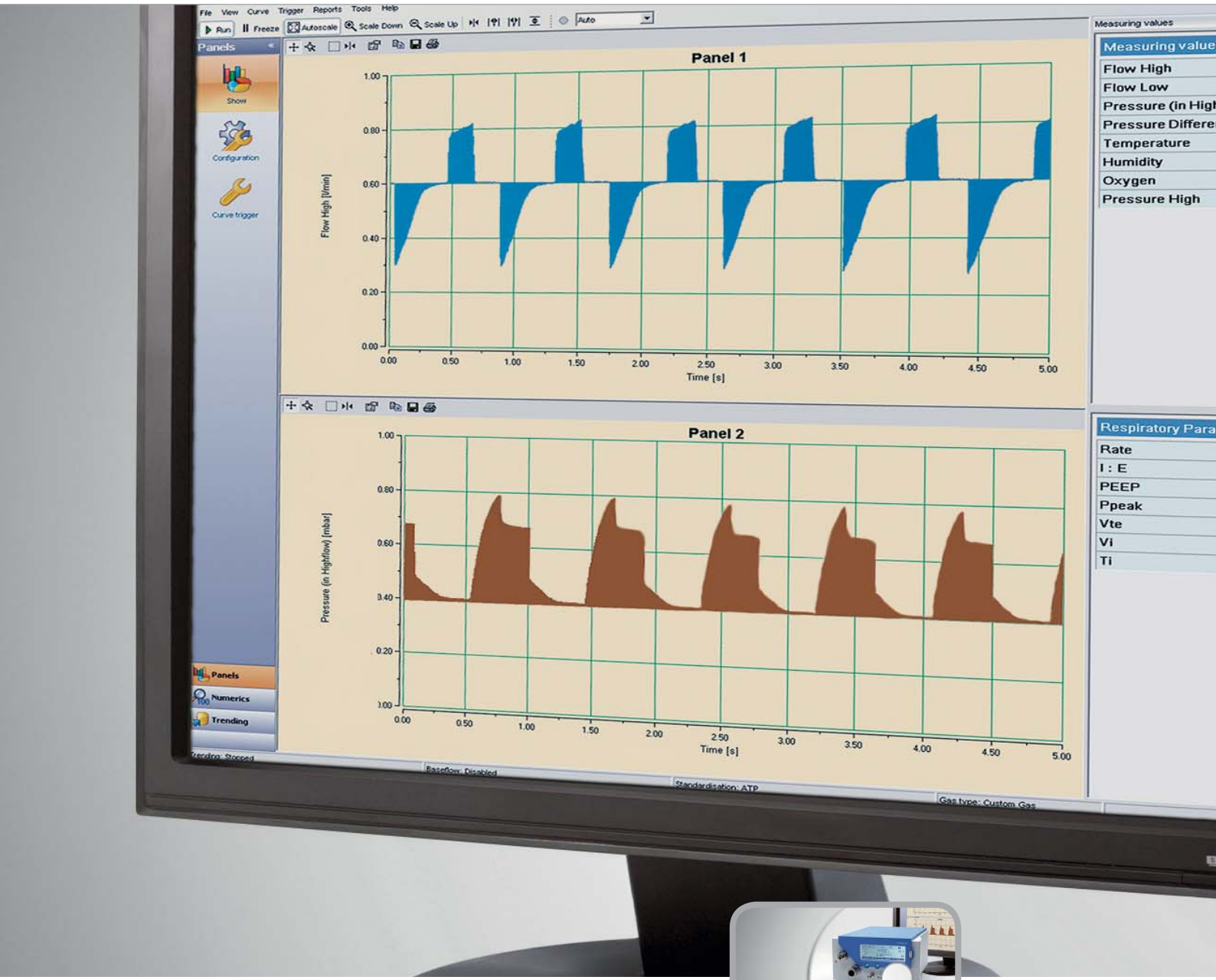
Gas Standards
13 gas standards and 10 gas types adapt the FlowAnalyser to the tested device.

EasyCal™
The fastest and easiest calibration service in the world!

USB, RS-232 and External Trigger
The FlowAnalyser communicates with your test software and ventilator.

Battery Operation
Convenient and independent work when you are on the go.

FlowLab™
High quality reporting documentation.



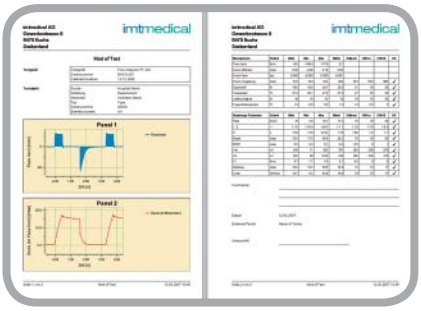
Minimum System Requirements

- Intel® Pentium® III 800 MHz (P4 1200 MHz recommended)
- Microsoft® Windows® 98, Me, 2000, XP, Vista, 7 (32 bit / 64 bit)
- Microsoft® Internet Explorer 5.01 or higher
- 128 MB RAM (512 MB recommended)
- 160 MB free space on the HD (full installation)
- CD-ROM drive
- Display 800 x 600 (1024 x 768 recommended)

FlowLab is the ideal software package. Its uniqueness is reflected in the simplicity of its menu. Selecting your preferred display mode (Panels, Trending or Numerics) with a few simple mouse clicks is easy. The user-configured test reports also allow all data to be conveniently collected.

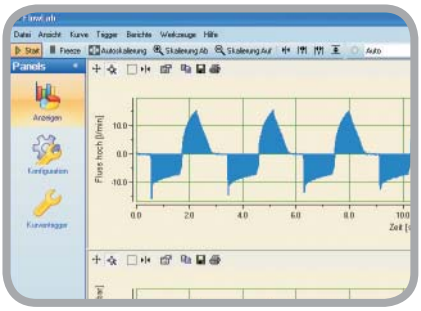
Test Report

- Test report printouts with one click
- User-defined configuration
- Logo insertion available
- FlowAnalyser data automatically retrieved
- Various input options for each tested object
- Unique control number for each report



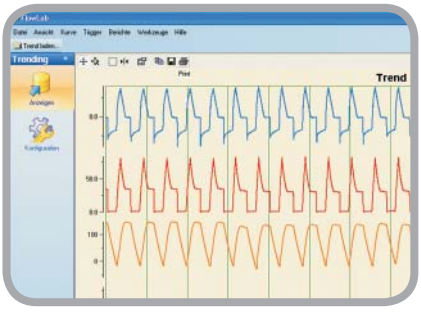
Panels

- Displayed in time-relation or as a loop
- Various cursors measure the curves
- Unique trigger used to display real-time curves in Single Shot, Norm or Auto mode
- User-defined layout and colours
- Option of setting a title, printing and saving
- Simultaneous display of up to 6 different curves



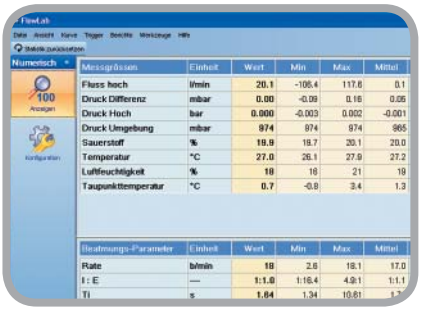
Trending

- Up to 100 hours of data logging
- User-defined trending interval
- Up to 10 values simultaneously
- Data export to Excel, etc.
- User-defined layout and colours
- Option of setting a title, printing and saving
- Automatic file size calculation



Numerics

- All measurements displayed on one page or combined with panels
- User-defined layout and colours
- Statistical data including mean, max and min for each value
- Input of target value with tolerances
- Automatic verification
- Up to 20 values displayed simultaneously



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FlowAnalyser™ Technical Data

Flow & Pressure Measurements		Range	Accuracy	PF-300	PF-301	PF-302
Flow	Measuring direction	bidirectional		•	•	•
	Temperature compensated	yes		•	•	•
	Pressure compensated	yes		•	•	•
	Humidity compensated	yes		•	•	•
	O_2 compensated	yes		•	•	•
	High	± 300 L/min	± 1.75%* or ± 0.1 L/min**	•	•	•
	Low	± 20 L/min	± 1.75%* or ± 0.04 L/min**	•	•	•
Pressure	High	0 - 10 bar	± 1%* or ± 10 mbar**	•	•	•
	Average	± 150 mbar	± 0.75%* or ± 0.1 mbar**	Difference	Relative	Relative
	Low	0 - 5 mbar	± 1%* or ± 0.01 mbar**			•
	High in Flow Canal	0 - 150 mbar	± 0.75%* or ± 0.1 mbar**	•	•	•
	Barometer	0 - 1150 mbar (abs)	± 1%* or ± 5 mbar**	•	•	•
	Vacuum pressure	± 1000 mbar	± 0.5%* or ± 2 mbar**		•	
Measuring unit	Flow	L/min, L/s, cfm, mL/min, mL/s		•	•	•
	Pressure	bar, mbar, cmH_2O, inH_2O, Torr, inHg, hPa, kPa, mmHg, PSI		•	•	•

Additional Measuring Values		Range	Accuracy	PF-300	PF-301	PF-302
Oxygen	Concentration	0 - 100%	± 1% O_2**	•	•	•
	Pressure compensated	yes		•	•	•
Temperature	High in Flow Canal	0 - 50°C	± 1.75%* or ± 0.5°C**	•	•	•
Dew point	High in Flow Canal	-10 - 50°C	± 2%* or ± 1°C**	•	•	•
Humidity	High in Flow Canal	0 - 100%	± 3%**	•	•	•
CO_2	Concentration	0 - 20%	± 8%* or ± 0.3%**	with OR-703	with OR-703	with OR-703
N_2O	Concentration	0 - 100%	± 8%* or ± 2%**	with OR-703	with OR-703	with OR-703
HAL, ISO, ENF	Concentration	0 - 12%	± 8%* or ± 0.2%**	with OR-703	with OR-703	with OR-703
SEV	Concentration	0 - 15%	± 8%* or ± 0.2%**	with OR-703	with OR-703	with OR-703
DES	Concentration	0 - 22%	± 8%* or ± 0.2%**	with OR-703	with OR-703	with OR-703
Gas types		Air, Air/O_2, N_2O/O_2, Heliox (21% O_2), He/O_2, N_2, CO_2, customized gas types		•	•	•
Gas Standardisation		ATP, ATPD, ATPS, AP21, STP, STPH, BTPS, BTPD, 0/1013, 20/981, 15/1013, 25/991, 20/1013		•	•	•

Respiratory Parameters [1]		Range	Accuracy	PF-300	PF-301	PF-302
Rate		1 - 1000 bpm	±1 bpm or ± 2.5%**	•	•	•
Time	T_I,T_E	0.05 - 60 s	± 0.02 s	•	•	•
I:E ratio		1:300 - 300:1	± 2.5%*	•	•	•
Ti/Ttotal		0 - 100%	± 5%*	•	•	•
Breath volumes	Vti, Vte	± 10 L	± 2%* or ± 20 mL**	•	•	•
Minute volumes	Vi, Ve	0 - 300 L/min	± 2.5%*	•	•	•
Pressure	P_{peak}, P_{mean}, PEEP, $P_{plateau}$	0 -150 mbar	± 0.75%* or ± 0.1 mbar**	•	•	•
Peakflow	Peakflow Insp./Exp.	± 300 L/min	± 1.75%* or ± 0.1 L/min**	•	•	•
Compliance	C_{stat}	0 - 1000 mL/mbar	± 3%* or ± 1 mL/mbar**	•	•	•
Trigger	Adult, Pediatric, HFO	Adjustable on flow or pressure curves with user-defined limits.		•	•	•

General Information					
Electrical & Physical Data	AC input	90 - 260 VAC, 50/60 Hz	•	•	•
	Battery (lead rechargeable battery)	3 hrs (with OR-703 2 hrs)	•	•	•
	Power consumption	23 VA	•	•	•
	Weight	3.7 kg	•	•	•
	Dimensions (w x d x h)	22 x 25 x 12 cm	•	•	•
Data Storage		all parameters (measured as well as respiratory values)	•	•	•
Display	Graphic display	Intuitive user interface with numerical measuring values, statistics, volume trigger configuration, gas type selection and calibration menus.	•	•	•
RT-200 Emulation Mode		Simulates RT-200 style commands over the RS-232 interface.	•	•	•
Communication Interfaces		USB for Windows Software FlowLab, RS-232 for individual communication, TTL for external trigger.	•	•	•
Calibration		annually	•	•	•
Conditions	Ambient temperature	10 - 40°C (50 - 104°F)	•	•	•
	Humidity	10 - 95% R.H.***	•	•	•
Approvals		CE, CSA	•	•	•

Legend

* Tolerance related to the measured value
** Absolute tolerance
*** Non-condensing
} The greater tolerance is valid

[1] Tolerance related to the optimal calibration of the trigger

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