



Rigel 355

The more complete evaluation and control portable tool

The new Rigel 355 is a highly accurate portable ventilator tester, which allows for quick and easy testing of the most common parameters of ventilators. Housed in a rugged enclosure, the Rigel 355 is one of the smallest ventilator testers in its kind. A number of standard accessories provide a complete solution for engineers testing both adult and paediatric ventilators.

The internal memory provides an easy method of storing the real time characteristics of the ventilator. When used with the optional **Respi** software, the Rigel 355 can be used as an interface, to provide real time characteristics of the ventilator on the PC for highly efficient analysis.

The Rigel 355 measures the following parameters:

- Respiratory Frequency
- Ratio I/E
- Tidal volume
- Maximum Pressure
- Minimum Pressure
- Ventilation
- Expiratory average flow
- Inspiratory average flow

The measurement of the flow is realized through two sensors:

- A pneumotacograph of Fleisch, which allows obtaining very good results and precise measures thanks to the perfect laminar flux. Different sizes are available depending on the flow you measure (see FS over).
- A differential sensor of pressure +/- 2.5 hPa, insensitive to gravitation, compensated in temperature, calibration zero and full scale.

Digitalisation of flow and pressure signals to a 100 Hz frequency (1 point/10 ms)

The measurement of **low pressure** is realized using a differential pressure sensor with the same characteristics as described above but having a measurement bracket of +/- 75 hPa.

The measurement of the **high pressure** is realized using a differential pressure sensor with the same characteristics as described above but having a measurement bracket of +/- 7 Bars.

An accurate electrochemical probe provides the measurement of the **Oxygen rate** with an accuracy of (0-100% ± 1 %).

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Mecanical and electrical characteristics of Rigel 355

Dimensions : 225*115*80 mm (+ external pneumotachograph)

Weight : 0.900 Kg

Supply voltage : internal battery (12 hours autonomy)
mains supply with a 230 Volts adapter

Accessories

- Carrying suitcase
- Pneumotachographs (from n° 00000 to n° 5)
- Portable printer connected directly on Rigel 355
- Car charger
- Passive lung

Technical Specification

Parameters directly calculated and displayed on Rigel 355 :

Parameters	Symbol	measures	Precision	Display Resolution
Respiratory Frequency	FR	-	-	0.01 cycle/min
Ratio I/E	I/E	0.01 to 9.99	-	0.01
Tidal volume	Vt	Limited by the volume of the charge	-	10 mL
Maximum Pressure	Pmax	FS : +/- 75 hPa	+/- 1%	0.01 hPa
Minimum Pressure	Pmin	FS : +/- 75 hPa	+/- 1%	0.01 hPa
Ventilation	L/min	-	-	10 mL/min
Expiratory average flow	Fmoy	Depends on the used pneumo	+/- 1%	10 mL/s
Inspiratory average flow	Fmoy	Depends on the used pneumo	+/- 1%	10 mL/s

- : Unlimited measure

The pressure can be displayed in hPa, or cmH2O or in PSI.

The flow can be displayed in L/sec, or in L/min.

Parameters displayed in Manometer / Flowmeter Mode :

Parameters	Symbol	measures	Precision	Display Resolution
Flow (pneumo type 2)	D	± 2,5 L/s or 150 L/min	2 %	0.01 L/min
Flow (pneumo type 0)	D	± 0,25 L/s or 15 L/min	2 %	0.1 mL/min
Low Pressure	Pb	± 60 hPa	1 %	0.01 hPa
High Pressure	Ph	0 à 5 bars	1 %	0.001 bar
FiO ₂	O ₂	+/- 100 %	1 %	0.01 hPa

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Calculated parameters by Rigel *Respi* software (Rigel 355 used in Ventest Mode)

Parameters	Range of measures	Precision	Display resolution
Maximum pressure Minimum	+ /- 75 hPa	+ /- 1%	0.01 hPa
Maximum expiratory flow Inspiratory	originally + /- 3 L/s (depends on the used pneumo, see table)	+ /- 5% (for 1 L volume)	10 mL/s
Expiratory Average flow Inspiratory	Originally + /- 3 L/s (depends on the used pneumo , see table)	+ /- 5% (for 1L volume)	10 mL/s
Tidal volume (Insp and Exp)	Depends on the volume of the charge		10 mL
Ratio I/E	0.01 to 9.99		0.01
Inspiratory Average Pressure	FS : + /- 75 hPa	+ /- 1%	0.01 hPa
PEEP	+ /- 75 hPa	+ /- 1%	0.01 hPa
Respiratory frequency	-		0.01 cycle/min
Ventilation	*		10 mL/min
Index of internal resistance	*		0.01 hPa/L/s
Index expiratory resistance to 0.5 L/s or to Demax/2	*		0.01 hPa/L/s
Resistance of the model	*		0.01 hPa/L/s
Elastance of the model	*		0.01 hPa/L
Compliance of the model	*		0.01 mL/hPa
Inspiratory time period	-		0.01 sec
Expiratory time period	-		0.01 sec
Work	*		0.01 joule

- : range of measure are not limited (temporaly data)

* : range of measure limited by flow and pressure informations

The pneumotachograph 2 is proposed with the Rigel 355; others are available on request.

Kind of pneumotachograph	Maximum Flow	Advised flow
00000	12 ml/s	9 ml/s
0000	20 ml/s	15 ml/s
000	60 ml/s	40 ml/s
00	150 ml/s	100 ml/s
0	350 ml/s	250 ml/s
1	1.2 l/s	1 l/s
2	3 l/s	2.5 l/s
3	8 l/s	6.5 l/s
4	14 l/s	11 l/s
5	25 l/s	21 l/s

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* Rigel Medical is part of the Seaward Group