DESCRIPTION

The Hans Rudolph Research Pneumotach System Instrumentation Module with Windows Software is available in two Models-RSS 100HR and RSS 100.

It is a complete flow measurement system including pressure transducers and electronics for Flow Sensor input, an auxiliary pressure input, analog outputs and Windows™ software program for use in any application where airway flow and pressure are measured as well as an auxiliary pressure. The flow measurement can be corrected automatically for different gas mixtures and temperatures of inhaled and exhaled gases. This correction along with the linearization and calibration features provide a very accurate measurement of flow in a breathing circuit. It is designed to be used with Spontaneously Breathing or Mechanically ventilated humans or animals.

Model RSS 100HR
This Model is used with the Hans Rudolph Linear & Bi-Directional screen Pneumotachs, which are available in eight different calibrated flow ranges and heated or non-heated. The Hans Rudolph Pneumotachs are sold separately. Refer to Data Sheet 691037 in Tab 11 of Hans Rudolph Catalog & Detailed Price List for complete listing.

Model RSS 100
This Model is used with the Fixed Orifice Pneumotachs, which are available in two sizes- Adult & Neonatal. One of each is supplied with this Module. Other quantities are sold separately.

The RSS 100HR & RSS 100 research pneumotach systems measure gas flow using the differential-pressure method. As gas flows through the pneumotach, the microprocessor-based system converts the measured differential pressure to volumetric flow rate. Flow and pressure measurements are used to calculate several ventilatory parameters such as respiratory rate, lung compliance, tidal volume, minute volume, positive end expiratory pressure (PEEP), etc.

Both Models have a graphic liquid-crystal display, which shows flow, pressure and volume strip-chart plots as well as flow-volume and pressure-volume loops. Calculated parameters are also displayed on the screen. The system can also be interfaced to a computer through a serial data port. A Windows™ software program (which is specific to each Model) is included to acquire wave-forms and data produced by the Modules. Flow, pressure, volume and auxiliary pressure signals are available as analog outputs for convenient and reliable interfacing to a strip chart recorder, oscilloscope or other instrument.

FREE demonstration disk of software available.

FEATURES

RSS 100HR Only
- Use with Hans Rudolph Linear Screen Pneumotachs for 2% accuracy. Flow ranges from 0-3, 0-5, 0-10, 0-35, 0-100, 0-160, 0-400 & 0-800 L·min⁻¹.
- Built-in linearization routine calibration function for the Linear Hans Rudolph Screen Pneumotachs.

RSS 100 Only
- Use with adult and neonatal fixed-orifice, differential pressure pneumotachs which require no user calibration and remain accurate even under extreme conditions.

Common to both modules
- Custom Microsoft Windows™ software for displaying, storing, and reviewing data (Module Specific).
- Monitor is fully functional as a stand-alone device. LCD screen displays waveform and parameter data in real time.
- Embedded microprocessor calculates flow rates and provides correction for gas density, viscosity, temperature, barometric pressure, and airway pressure.
- Calculates over 15 ventilatory parameters.
- Integrated breath detection algorithm automatically detects start and end of breath.
- Calibration stored in non-volatile memory.
- Built-in gas viscosity calculator.
- Serial RS232 and analog outputs provided for simple computerized data collection.

RSS 100HR RESEARCH PNEUMOTACH SYSTEM WITH HANS RUDOLPH LINEAR PNEUMOTACH.

SPECIFICATIONS

CALCULATED PARAMETERS:
- Positive End Expiratory Pressure
- Peak Inspiratory Pressure
- Mean Airway Pressure
- Inspiratory Pause Pressure
- Compliance
- Tidal Volume
- Minute Volume
- Respiratory Rate
- Inspiratory and Expiratory Time
- Inspiratory and Expiratory Ratio (I:E)
- Peak Inspiratory and Expiratory Flow Rates

FLOW SENSORS:
Linear Pneumotachs (Hans Rudolph Screen Type)
- Specifications are sensor (flowhead) dependent.
- Range +/- 800 L·min⁻¹.
- Accuracy +/- 2% (typical).
- Frequency Response >25Hz
- Full range of sizes as follows:

<table>
<thead>
<tr>
<th>SERIES</th>
<th>APPLICATION</th>
<th>FLOW RANGE (L·min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8430/8431</td>
<td>Mouse</td>
<td>0-3</td>
</tr>
<tr>
<td>8420/8421</td>
<td>Mouse, Rat, Guinea Pig</td>
<td>0-5</td>
</tr>
<tr>
<td>8410/8411</td>
<td>Premature, Feline</td>
<td>0-10</td>
</tr>
<tr>
<td>8300/8311</td>
<td>Neonate, Rabbit</td>
<td>0-10</td>
</tr>
<tr>
<td>3500/4500</td>
<td>Infant, Small Canine</td>
<td>0-35</td>
</tr>
<tr>
<td>3719/4719</td>
<td>Pediatrics, Canine</td>
<td>0-100</td>
</tr>
<tr>
<td>3700/4700</td>
<td>Pediatrics, Adults at rest, Large Canine</td>
<td>0-160</td>
</tr>
<tr>
<td>3830/4830</td>
<td>Adult PFT, Spirometry</td>
<td>0-400</td>
</tr>
<tr>
<td>3813/4813</td>
<td>Athlete, Spirometry</td>
<td>0-800</td>
</tr>
</tbody>
</table>

* Less Than 38 Week Gestational
* Birth to One Month
* 1-12 Months

HANS RUDOLPH PNEUMOTACHS IN FOUR STANDARD FLOW HEAD SIZES WITH EIGHT DIFFERENT CALIBRATED FLOW RANGES

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Fixed-Orifice Pneumotachs:

**Adult Flow Sensor**
- Range +/- 1.0 to 180 L·min⁻¹
- Accuracy +/- 3% of reading.
- Resolution 0.1 L·min⁻¹
- Frequency Response >25Hz
- Dead Space: 7.2 ml added Dead Space. 8.59 ml end to end Dead Space.
- Port Dimensions: 15mm O.D. one end, 15mm I.D. other end.

**Neonatal Flow Sensor**
- Range +/- 0.24 to 35 L·min⁻¹
- Accuracy +/- 3% of reading.
- Resolution 0.01 L·min⁻¹
- Frequency Response >25Hz
- Dead Space: .6 ml added Dead Space. 1.0 ml end to end Dead Space.
- Port Dimensions: 15mm O.D. one end, 15mm I.D. other end.

**REFERENCES:**
For additional information on the RSS 100HR and RSS 100 Research Pneumotach Systems refer to the following:
- Free demo disk-Windows software version 3.03
- Free downloadable demo software at our website- www.rudolphkc.com
- RSS 100HR users manual including software instructions P/N 691039
- RSS 100 users manual P/N 691214
- RSS 100 software manual P/N 691215

**ORDERING INFORMATION:**
P/N | Model No.
--- | ---
113231 | RSS 100HR Research Pneumotach System for Rudolph Pneumotachs, complete instrumentation module with RSS 100HR Windows software and users manual, dual tube assembly, serial port cable and power cord set (please specify country).
113233 | RSS 100 Research Pneumotach System for Fixed-Orifice Pneumotachs, complete instrumentation module with RSS 100 Windows software & users manual and one each neonatal and adult Fixed-Orifice PNT, serial port cable and power cord set (please specify country).

**REPLACEMENT PARTS:**
- 691039 Users and software manual for RSS 100HR
- 691214 Users manual (only) - for RSS 100
- 691215 Software manual (only) - for RSS 100
- 691216 Software - for RSS 100HR
- 691217 Software - for RSS 100
- 870024 Serial port cable (9 pin) - for both RSS 100HR and RSS 100
- 666007 Dual tube assembly for RSS 100HR Differential Pressure Pneumotach.

**ACCESSORIES:**
- 171109 Fixed-Orifice Pneumotach, Adult +180 L·min⁻¹ with tubing and female luerlocks.
- 171110 Fixed-Orifice Pneumotach, Neonatal ±35 L·min⁻¹ with tubing and female luerlocks.

Caution: This device is for research purposes only; do not base clinical decisions on information obtained from this device.