

# S P E C I F I C A T I O N S

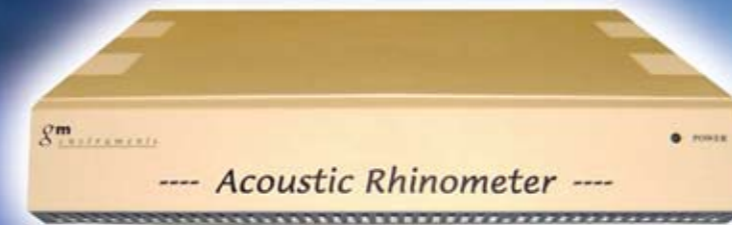
NR6 Rhinomanometer		NR6 CLINICAL	NR6 CLINICAL/RESEARCH
PRESSURE RANGE		800pa	800pa
FLOW RANGE		800cc/sec	800cc/sec
ACCURACY		2%	2%
SIZE		27 x 6 x 28cm	27 x 6 x 28cm
WEIGHT		2Kgm	2Kgm
ELECTRICAL SAFETY		BS EN 60601	BS EN 60601
CE MARK CLASS/APPROVAL		CLASS1/YES	CLASS1/YES
MEASUREMENTS:	ACTIVE ANTERIOR RESISTANCE	YES	YES
	VERTEX RESISTANCE	NO	YES
	ACTIVE POSTERIOR RESISTANCE	YES	YES
	EFFECTIVE RESISTANCE	NO	YES
	STANDARD/BROMS/ROHRER CALCULATIONS	YES	YES
COMPLIES WITH STANDARDISATION COMMITTEE RECOMMENDATIONS		YES	YES
"BEST PRACTISE" BATCH FACILITY		NO	YES
DATA EXPORTING SOFTWARE		NO	YES

A1 Acoustic Rhinometer		A1 CLINICAL	A1 CLINICAL/RESEARCH
DISTANCE RANGE:	STANDARD SOUND TUBE	12cm	12cm
	OPTIONAL SMALL ANIMAL SOUND TUBE	5cm	5cm
	OPTIONAL CHILD SOUND TUBE	10cm	10cm
	OPTIONAL LONG SOUND TUBE	25cm	25cm
AREA RANGE:	STANDARD SOUND TUBE	0.1 - 20cm <sup>2</sup>	0.1 - 20cm <sup>2</sup>
	OPTIONAL SMALL ANIMAL SOUND TUBE	0.001 - 0.3cm <sup>2</sup>	0.001 - 0.3cm <sup>2</sup>
	OPTIONAL CHILD SOUND TUBE	0.01 - 5cm <sup>2</sup>	0.01 - 5cm <sup>2</sup>
	OPTIONAL LONG SOUND TUBE	0.1 - 20cm <sup>2</sup>	0.1 - 20cm <sup>2</sup>
VOLUME ACCURACY			
DISTANCE 0-5cm		2%	2%
5cm - end		5%	5%
INFORMATION REPORTED:	STANDARD SOFTWARE	2 x minimum areas 3 x volumes	2 x minimum areas 3 x volumes
	MULTIPLE REPORT	NO	YES Volumes + Areas
	DATA EXPORT FACILITY	NO	YES
SIZE		27 x 6 x 28cm	27 x 6 x 28cm
WEIGHT		2Kgm	2Kgm
CE MARK CLASS/APPROVAL		2A/YES	2A/YES
COMPLIES WITH STANDARDISATION COMMITTEE RECOMMENDATIONS		YES	YES
"BEST PRACTICE" BATCH FACILITY		NO	YES
ELECTRICAL SAFETY		BS EN 60601	BS EN 60601

<b>LOCAL DISTRIBUTOR</b>	GM Instruments Ltd, Unit 6, Ashgrove, Ashgrove Road, Kilwinning, UK, KA13 6PU <b>Tel: 01294 554664</b> Fax: 01294 551154 email: gminstruments@aol.com enquiries@gminstruments.com www.gm-instruments.com
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## NASAL INVESTIGATION INSTRUMENTATION

featuring the gmi



gmi  
instruments  
Ltd

### RHINOMANOMETER & ACOUSTIC RHINOMETER

#### FEATURING:

- EASY TO USE WINDOWS BASED PROGRAMS ←
- QUICK AND ACCURATE NON INVASIVE MEASUREMENTS ←
- PRE AND POST OPERATIVE/CHALLENGE COMPARISONS ←
- GRAPHICAL AND NUMERICAL RESULT PRESENTATION ←
- SUPPLIED COMPLETE OR FOR USE WITH YOUR OWN PC ←
- CAN BE INTEGRATED INTO A NASAL EXAMINATION SYSTEM COMPRISING A COMBINED RHINOMETER & RHINOMANOMETER ←
- STATE OF THE ART PRODUCT WITH BUILT IN EXPANSION OPTIONS ←
- COMPLIES WITH INTERNATIONAL SAFETY AND PERFORMANCE STANDARDS ←

## A1 Clinical/Research Acoustic Rhinometer

### Description

Acoustic Rhinometers allow a very rapid non-invasive examination of the nasal cavity using a sound pulse technique.

Reflections of the sound pulse, produced by changes in the cross sectional area within the nose, are processed by a PC to provide a plot of area, as a function of distance, into the nose. Numerical information such as the area at certain distances, and volumes between certain points in the nose, can also be presented.

Two versions of the system are offered, to provide facilities tailored to particular applications which include:

- Surgical pre/post comparisons
- Nasal symmetry assessment
- Allergen challenge recording
- Sleep studies
- Quantifying the effect of decongestants, hay fever & viral infections such as the common cold.

### Hardware Requirements

We are able to supply complete systems, including a medical grade PC and printer or alternatively we can supply the components required to install the A1 in your PC. The minimum PC requirement is a system running Microsoft Windows XP or later and which has a USB port available. Any printer with a Windows driver should be suitable. If your PC is not approved for use in a medical environment, we can supply the necessary converter.

### The A1 Clinical & A1 Clinical/Research models provide:

Patient database, software calibration, colour selection facility for screen and printout, patient record screen editing, adjustable scale setting, calculation of the first two minimum areas, the distance at which minima's were found, the volume between any three distances, user definable printout headings and A4 size printouts.

### The A1 Clinical/Research model additionally provides:

All the features above plus:

Software controlled **result validation** facility, which acquires data in batches, and then calculates the coefficient of variance between them. Most errors in rhinomanometry and acoustic rhinometry occur because of leakage or distortion at the nose/instrument interface. If you can make a measurement, remove the sound tube, re apply it and then make another measurement and find the coefficient of variance is low, then almost certainly you have good data.

Provision of the International Standardisation Committee approved artificial **nose** plus other tools to allow the performance of the system to be "tuned up" to optimal performance.

An **export facility**, which allows the transfer of data into other software packages.



A **plot style facility** to allow report printouts in a number of different styles.

Provision for **expansion** of the system to incorporate additional sound tubes set up to cover different measurement ranges. eg the child sound tube noted below.

It is anticipated that the A1 Clinical will suit applications where assessment can be based on basic information taken from the screen or from a simple printout, while the A1 Clinical/Research will be used for detailed investigations usually involving pre/post comparison of data.

### Accessories

The following are supplied with the system:

5 pairs of medium and large anatomically conformed nosepieces, 5x8mm, 5x10mm, 5x12mm conical nosepieces, a USB interface with setup software, and user hardware and software manuals.

### Options

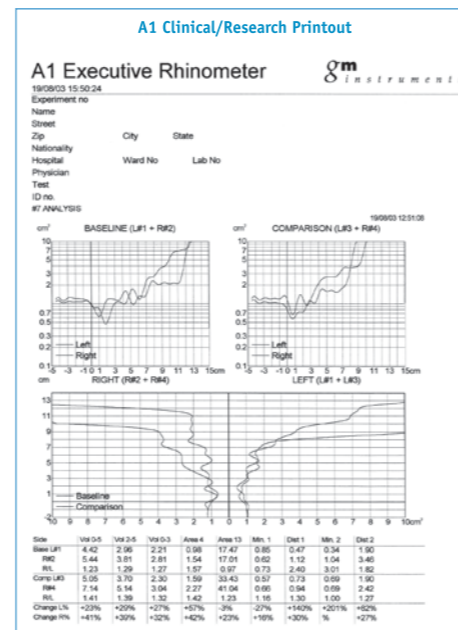
Additional sound tubes, for use with small animals or children are also available as is a long sound tube to allow measurements to 25cm depth. We also have open tube designs. Please contact us with your specific requirements.

A compatible rhinomanometer, model NR6, can be linked to the same interface as A1 and can therefore share the same PC and printer, as can our NV1 rhinospirometer.

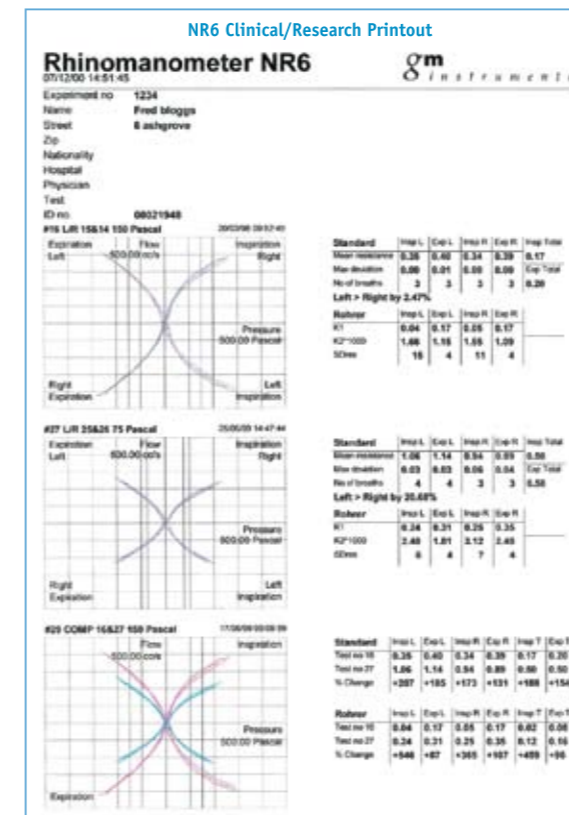
### A1/NR6 Combined Software (Naris)

Software which can make either A1 acoustic or NR6 rhinomanometric measurements, and which creates patient records containing both results, is also available. Order a linked A1/NR6 with combined software.

Facilities provided are those for the Clinical/Research versions of A1 & NR6.



## NR6 Clinical/Research Rhinomanometer



### Description

The NR6 calculates nasal airway resistance by measuring nasal flow and the pressure producing that flow.

Active anterior or posterior rhinomanometry, using either the Broms or standard techniques can be performed. Results are calculated using the four phase system approved by the International Standardisation Committee.

In addition NR6 can calculate and display either the Rohrer coefficients or the Broms angle relating to the resultant curves, and for anterior measurements there is a diagnostic mode, which looks for nasal valve collapse.

Two versions of the instrument are available, the NR6 Clinical and the NR6 Clinical/Research - the difference between them being software facilities as described below plus the addition of a Rhinocal unit with the executive version.

### Hardware Requirements

We are able to supply complete systems, including a medical grade PC and printer. Alternatively we can supply the components required to install the NR6 in your PC.

The minimum PC requirement is for a system running Microsoft Windows XP or later and which has a USB port available.

Any printer with a Windows driver should be suitable.

If your PC is not approved for use in a medical environment, we can supply the necessary converter.

### The NR6 Clinical & NR6 Clinical/Research models provide:

- a An individual patient database, which holds patient details and stores test result files, in chronological order, for ease of display printout and comparison.
- b Files which can be saved to disk and recalled for comparison, re-examination or printout.
- c Tests can be performed using one of a number of techniques and reassessed by changing the reference or threshold points.
- d Test results can be compared with ones previously stored. This comparison is presented in the form of a graphical display with percentage change figures produced, and is available for printout.

### The NR6 Clinical/Research model additionally provides:

All the above features plus:

A batch test facility to allow data runs to be repeated and mean, standard deviation and coefficient of variance calculation for results within the batch to be displayed and printed. This "best clinical practice" facility helps ensure top grade measurement accuracy.

Calculation & display of Effective Resistance & Vertex Resistance is included in this model.

Data exportation facilities are built in to the Clinical/Research model which allows "raw" data in a number of formats to be provided for statistical analysis and other purposes.

The Clinical/Research system also includes a fixed pneumatic resistor which allows a rapid check (but not adjustment) of calibration to be made. (Rhinocal.)

### Consumable starter pack supplied with both models

1 x Adult re-usable mask	NR RA
1 x Child re-usable mask	NR RC
1 x Antiviral filter	NR Filter
1 x Small foam insert (pkt 4)	NR Small
1 x Medium foam insert (pkt 4)	NR Medium
1 x Large foam insert (pkt 4)	NR Large
1 x Metre anterior tubing	NR Antub
1 x Tip connector (pkt 5)	NR Tipcon
1 x Anterior tape (roll)	NR Tape
1 x Metre posterior tubing	NR Postub

### Accessory supplied with the Clinical/Research model

1 x Calibration checking device	Rhinocal
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### Options

#### A1/NR6 Combined Software (Naris)

Software which can make either A1 acoustic or NR6 rhinomanometric measurements, and which creates patient records containing both types of results, is also available.