



# QA-VTM

## Ventilator Testing System

### PRODUCT HIGHLIGHTS

- Unique Doppler Measuring Technology - patent pending
- Independent of gas agents used for testing: O<sub>2</sub>, Air, N<sub>2</sub>O or mixtures
- Tests High Frequency Ventilators (Breath Rates from 0 to 600 BPM - 10Hz)
- Tests with or without optional test loads (simulated lungs)
- Simultaneous display of multiple parameter (e.g. rate, volume, flow, PEEP)
- Test infant, paediatric, and adult ventilators
- Trend testing - up to 48 hours (with *ansur*)
- High accuracy and resolution
- Simple to operate
- Centronics printer interface / RS-232 computer interface
- User-defined test protocols using *ansur* QA-VTM
- Pressure, flow, and volume wave forms using *ansur* QA-VTM

Note: All *ansur* test software is designed for Microsoft Windows™ operating environment.

### OVERVIEW

QA-VTM offers many unique features for verifying the performance of infant, paediatric, and adult mechanical ventilators (breathing machines). Unlike any other tester, QA-VTM makes it easy to add a test load (lung simulation) to the test system without corrupting the results.

Ventilation parameters including breath rate, inspiratory and expiratory timing, I.E. ratio, flow rates, tidal volume, and airway pressure can be checked. Flow, pressure, and volume measurements can also be independently made. For the purposes of troubleshooting or verifying operation, a Trend Test can be selected and performed. This test allows you to run a ventilator for up to 48 hours on the QA-VTM and record key ventilation measurements.

For greater automation and enhanced viewing of the test data, you may want to utilize the *ansur* QA-VTM test software. With *ansur* you can remotely control the unit, create and save unique test sequences for each brand or model of ventilator, perform automated tests, and print the results and/or store them to disk. *ansur* also allows viewing of pressure, volume, and flow waveforms, which can be useful in diagnosing problems or validating a ventilator's own on-screen display.

# QA-VTM Specifications

This unit is designed for "stand alone" operation or for remote control operation by *ansur* (Windows™ application). "Stand alone" operation gives the following features:

## FEATURES

### Inputs:

Flow range:	0.1 LPM to 160.0 LPM
Accuracy:	2% of reading
Pressure - Low Range:	-50 to 500 mmHg
Accuracy:	1% of reading ± 1 digit
Pressure - High Range:	-130 to 5300 mmHg
Accuracy:	0.2% of scale
Temperature:	+10 - 50°C
Accuracy:	±1°C
Oxygen level:	0 - 100%
Accuracy:	±5% of reading

### System set-up:

Reference unit:	BTPS, ATPX, STPD, ATPS, ATPD, NTPD
Pressure unit:	cmH <sub>2</sub> O, mbar, mmHg, kPa, psi
Flow unit:	l/min, l/s, ml/s
Temperature unit:	C, F, K
Gas mixture:	Air, Air/O <sub>2</sub> , O <sub>2</sub> , O <sub>2</sub> /N <sub>2</sub> O
No. of breaths for calc.:	1 - 20 no (s)
Noise level:	0- 9996 ml/min
Detect level:	0- 9996 ml/min
Resistance unit:	cmH <sub>2</sub> O/l/s, mbar/l/s
Resistance level:	non, 5, 20, 50, 200, 500
Atmos. pressure:	0 - 2000 mmHg
Relative humidity:	10 - 99%
Mass flow:	Yes/No

Suppress Pressure  
Peak period: 10 - 100 ms

The unit may be connected to a test lung for compliance setting.

## MEASUREMENTS/CALCULATIONS ACCURACY

Breath rate:	0 - 600 bpm
Time accuracy:	± 1/100 sec.
I:E ratio:	as calculated
Inspiration time:	0.01 to 60 sec.
Expiration time:	0.01 to 60 sec.
Inspiration hold:	0.01 to 20 sec.
Expiration hold:	0.01 to 20 sec.
Continuous pressure:	-40 to 350 mmHg ± 1% of Reading
Mean pressure:	-40 to 350 mmHg ± 1% of Reading
Mean inspiration pressure:	-40 to 350 mmHg ± 1% of Reading
Mean expiration pressure:	-40 to 350 mmHg ± 1% of Reading
Peak inspiration pressure:	-40 to 350 mmHg ± 1% of Reading
Continuous flow:	0 - 160 LPM ± 2% of Reading
Inspiratory peak flow:	0 - 160 LPM ± 2% of Reading
Expiratory peak flow:	0 - 160 LPM ± 2% of Reading
Tidal volume:	0 - 2200 ml ± 2% of Reading
Minute volume:	as calculated

### Preset of test modes:

Ventilator test:	(simultaneous reading - 1 to 20 sample)
Leakage test	
Pressure monitor	
Flow monitor	

## WITH ANSUR, THE FOLLOWING FEATURES ARE ADDED

File operation:	Save, delete, copy
Graphics:	Cursor, focus, expand
Make and run:	Test sequences, checklists, protocol formats
Preset of patient type:	Adult/Infant
Preset of test modes:	Normal test/ Trend test (up to 48 hours trend)

## GENERAL INFORMATION

### Temperature Requirements:

+15/59 to +35/95 °C/F	while operating
0/32 to +50/122 °C/F	for storage

### Display:

Type:	LCD
Alphanumeric format:	4 lines, 40 characters
Display control:	7 F-keys and keypad

### Data Input/Outputs (2):

Parallel printer-port (1): Bi-directional 25 pin, Type Centronics, RS-232C: (1) for Remote Control

**Power:** From 100 VAC to 240 VAC, 47/63 Hz

**Housing:** Aluminium Case

**Dimensions:** D X W X H  
270 x 350 x 95 (mm)  
11 x 13.5 x 4 (in)

**Weight:** 3.5 kg/7.7 lb

### Standard Accessories:

QA-VTM User/Service Manual

### Recommended Printers:

HP Desk Jet, Cannon Bubble Jet or compatible

### Note:

Specifications may be subject to change without notice.

## QA-VTM Ordering Information

### Order no:

**16200:** QA-VTM Ventilator Tester

### Accessories:

**16210:** QA-VTM Carrying Case  
**10500:** Carrying Case, ext. printer  
**16240:** Test lung  
**16250:** Tubing kit  
**16220:** *ansur* QA-VTM Plug-In  
**16221:** *ansur* QA-VTM Plug-In, Demo  
**16230:** User Manual *ansur* QA-VTM Plug-In  
**16225:** User/Service Manual QA-VTM