

Ventilator Validation System



Test Pressure, Volume, and Oxygen Levels

Complete Solution—Integrated Hardware & Software

The Ventilator Validation System is designed for research, engineering and manufacturers to use when designing and testing new and existing hospital-grade ventilators. The system supports new prototype development, existing design validation for production testing, mobile field testing and verification, plus other uses where accurate pressure and flow measurements are critical. System includes:

- Pulmonary airflow transducer (laminar flow)
- Airway pressure transducer
- Amplifiers
- Calibration syringe
- Data acquisition system with automated pulmonary function analysis software

Optional oxygen percentage and temperature/humidity measurements available.

Ventilator Testing for Large-scale Manufacturing

To ensure efficiency, options include test automation and workflow management, controlled by scripting. Each test technician automatically accesses instructions and videos to ensure the correct procedure is performed. Upon test completion, technicians are prompted with instructions and a pass/fail audit trail is documented. Full test capabilities include:

- Technician instructions, procedures, and prompts
- Barcode scanning of technicians and serial numbers
- Full device tracking
- Pass/fail audit trail
- Troubleshooting
- Network Data Transfer (NDT) for remote access to real-time data

**Ventilator Validation
and Test Equipment
with Optional
Oxygen Transducer**



Calibrate and Validate New and Existing Ventilators

Ventilator Development

Pressure & Flow Measurements

Relief & PEEP Valve Validation

Flow & Pressure Regulator Evaluation

Cycle Timing Analysis

Leak Detection

Ventilator Mode Analysis (ACV, SIMV, PCV, PSV, APRV, etc.)

Optional Oxygen Percentage Measurement

Optional Temperature, Barometric, Humidity & Low Flow Measurements

Ventilator Testing

Small or large-scale testing

New prototypes

Existing ventilators

Multiple signals

Ventilator Support

Ventilator Field Verification

Failure Analysis

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Contact BIOPAC to learn more or request a quotation!

Ventilator Validation System

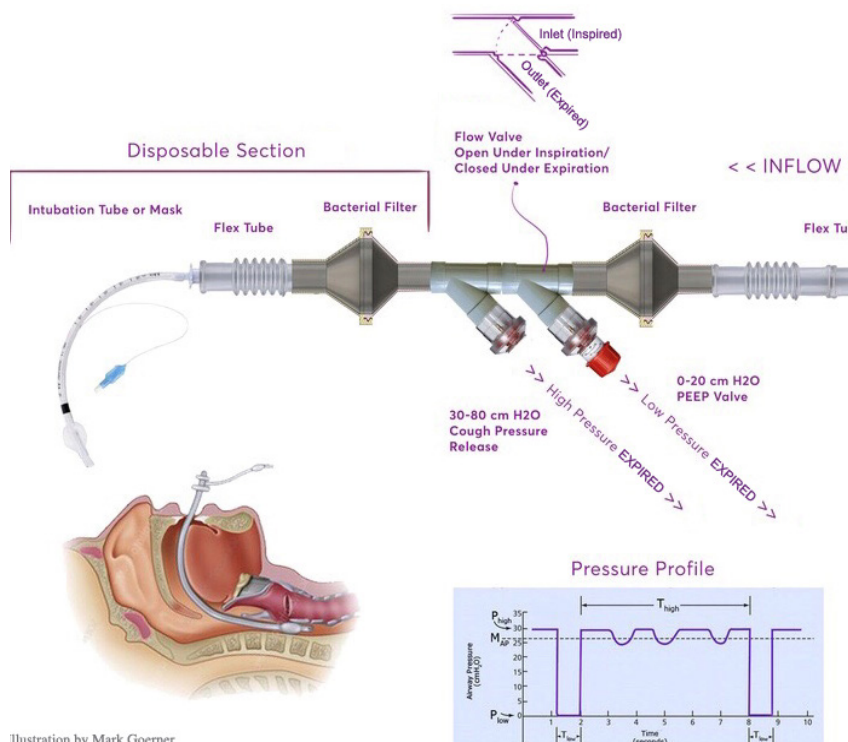


Illustration by Mark Goerner



Ventilator Measurements

- Pressure & Timing
- Cough Pressure Release
- Positive End-Expiratory Pressure
- Pressure
- Oxygen Concentration
- Air Flow & Volume

Ventilator Validation System Components

Data Acquisition System

MP160WS/W 16-channel Data Acquisition and Analysis system for Windows or Macintosh. The MP160 system can simultaneously monitor eight ventilators (pressure, volume).

AcqKnowledge Software

Controls the hardware, displays the data, and analyzes the signals in real time. (Software included with DAQ system.)

Airflow (Pneumotach) Transducer

TSD157B-MRI-01 Laminar flow transducer (± 120 LPM). Can be inserted, in-line, to typical hospital ventilator systems; also works for CPAP mode validation.

Calibration Syringe

AFT27 3-liter cal syringe is included for calibration and validation; certified to meet or exceed accuracy of .05%.

Differential Pressure Transducer

TSD160D Interface with pneumatic circuit to monitor airway pressure. Real-time validation data of pump volume and pump pressure ranges when combined with TSD157B-MRI-01.

Differential Pressure Amplifiers

DA100C (2) One for TSD157B-MRI-01 & one for TSD160D.

Optional Components for Additional Measurements

Scripting

ACK100W-BAS Standardize and automate routines to reduce the potential for error and improve data quality.

Real-time Data Transfer

ACK100W-NDT Data can be viewed in real time by third-party programs. License provides immediate network access while validation process is taking place.

Galvanic Oxygen Transducer

TSD301 Measures 0-100% Oxygen levels—synchronized with flow cycling.

STPD Results—Converted from ATP to Satisfy ISO 80601-2-12

TSD302 Wide Air Range Temperature Transducer

TSD303 Barometric Pressure (in ambient air)

TSD304 Humidity Transducer (in sampled flow stream)

TSD305 100 PSI Gauge Pressure Transducer

Water Vapor Pressure

Use **TSD302**, **TSD303**, **TSD304**

Tubing, Adapters, Bacterial Filters, Valves, Accessories

A wide range of products are available.

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