

LIFE-STAT® FEATURES | *Rugged • Reliable • Ready To Go!*

LIFE-STAT®

HANDS-FREE CPR

- Provides AHA 2010 CPR Guideline Compliant Hands-Free CPR.

- 30:2 Compressions to Ventilation ratio for face mask application (30:2 mode) or
- Continuous compressions and 9 asynchronous ventilations for advanced airway application (CCV mode)
- Chest compressions at 100 per minute
- Adjustable chest compression depth from 0 to 3.2 inches (0 to 8cm) provides the AHA required “at least 2 inches (5cm)” for adults or 1.5 inches (4cm) if needed
- Compressions are 50:50 systolic to diastolic ratio (50% compression length)
- Automatic Transport Ventilator (ATV) delivers 0 to 1L tidal volume coordinated with compressions
- Able to switch from 30:2 to CCV mode without interruption

- Secured with LIFE-STAT® Patient Restraint System (PRS)

- Massager Pad facilitates stable, safe chest compressions

- Complete chest recoil provided

- Compatible with ITD and ITPR devices

- Works on large range of patient sizes including bariatric patients

- Light weight – 16 lbs. (19.5 lbs. w/base) • Powered by Compressed Oxygen (50-90 psi)

- Will provide CPR for extended periods using light-weight carbon fiber oxygen cylinders

- Electronic control

- Switch from 30:2 to CCV mode • Pause/Resume CPR • Uses long-life 9-volt battery supply
- Batteries can be “hot swapped” out while unit is running



CALL TODAY: Michigan Instruments, Inc.
Toll Free: 800.530.9939 / **616.554.9696**
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LIFE-STAT®

WHAT IF...
YOU COULD
PROVIDE
PERFECT
CPR?

NOW YOU CAN!

Rugged • Reliable • Ready To Go

HANDS-FREE CPR SYSTEM

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COMPARISON OF MANUAL CPR TO LIFE-STAT® CPR

QUALITY CPR REQUIREMENTS	MANUAL CPR	LIFE-STAT® CPR
100 Compressions/minute	Difficult to perform well	Delivers exactly 100/min
50:50 Systolic to diastolic	Difficult to perform well	Delivers exactly 50:50
2010 AHA Compliant compression depth of at least 2 inches (5cm) and up to 3.2 inches (8cm)	Difficult to perform and physically demanding	Exact depth can be set
Complete chest recoil	Difficult to perform well	Active complete chest recoil-demonstrated synergy with ITD and ITPR technology to increase cardiac output
30:2 Mode - face mask ventilation	Difficult to perform, must count to 30, give two breaths	Exact, hands-free, automatic
Continuous CPR - advanced airway	Takes two rescuers, one does compressions at rate of 100/min, one does ventilation at a rate of 8 to 10/min	Exact, hands-free, automatic. Rescuers freed to do other tasks
Keep performing as long as required	AHA states rescuers fatigue after only one minute compromises quality of CPR	Can provide exact AHA CPR for as long as needed. Rescuers freed to do other tasks
Provide defibrillator shock	Rescuer must stand clear	Provides CPR during and after shock delivery
Perform CPR while patient is being carried to emergency vehicle	Requires at least 3 rescuers and chest compressions are usually ineffective because of movement and awkward angles	Requires only two rescuers to carry patient. Fully effective CPR is provided hands-free
Perform CPR when patient is on spine board going up or down stairs or in an elevator	Requires at least 3 rescuers and chest compressions are usually ineffective because of movement and awkward angles	Requires only two rescuers to carry patient. Fully effective CPR is provided hands-free
Read ECG	Stop CPR	With properly placed electrodes, ECG can often be read while CPR is applied. Can be used with ECG monitors utilizing CPR artifact signal averaging
Perform CPR in emergency vehicle	Requires at least one rescuer who is then not strapped in for 30:2 mode and may require 2 rescuers not strapped in for continuous CPR	Provides hands-free CPR in either 30:2 or continuous mode so rescuers can strap in or provide other treatment
Maintain coronary perfusion pressure (CPP) > 15 mm HG	Difficult to maintain	Studies show LIFE-STAT® piston action can provide CPP significantly above 15 mm HG
Perform effective CPR for long periods in cases such as hypothermia or drug overdose	Virtually impossible to perform long periods of effective CPR without a team of well trained, in-shape rescuers to switch out at least every two minutes	LIFE-STAT® CPR technology is used for long term hands-free CPR. The longest reported time with predecessor device for full patient recovery is 14.5 hours.

MICHIGAN INSTRUMENTS, INC.
In the business of Saving Lives...

Michigan Instruments, Inc. has been in the business of designing and manufacturing specialized Thumper® mechanical CPR equipment for over 40 years. The company has an impeccable reputation for building products of unexcelled quality. Today, Michigan Instruments continues to earn the respect of its customers and medical professionals around the world.

LIFE-STAT®
A Hands-Free CPR System

The LIFE-STAT® Hands-Free CPR System provides cardiopulmonary resuscitation in accordance with the guidelines of the current American Heart Association. Clinical and research settings have proved that LIFE-STAT® is the standard in providing very effective CPR. LIFE-STAT® is a mechanical CPR device that is easily used by all types of EMS, Fire-Rescue, Mobile ICU's, hospital Emergency Departments, Coronary and Intensive Care Units.



LIFE-STAT®
APPLICATIONS

- Ambulances
- Air Medivac Units
- EMT Rescue Units
- Fire Rescue Units
- Emergency Departments
- Coronary and Intensive Care Units
- Organ Transplant Facilities

See Control Panel Demonstration
www.life-stat.com

Training/Test Lung - TTL[®]



Adult Infant Lung Simulator

*Quality and Versatility
Built Into Every Unit*

Provides accurate simulation of wide ranges of normal and diseased lung conditions for ventilator testing/calibration and respiratory therapy instruction.



**Michigan
Instruments**
INC.

**Call 1-800-530-9939 or visit www.michiganinstruments.com
to learn more about the TTL/PneuView[®] test systems from
Michigan Instruments.**

Adult Infant TTL®

What is the Adult Infant TTL®?

- A portable analog dual lung (one adult and one infant) system which accurately simulates human pulmonary function for training or testing ventilators under simulated load conditions.
- The adult lung holds a residual capacity typical of an adult human. The infant lung's residual capacity is typical of an infant, 6 to 12 months of age.
- Visually demonstrates a variety of normal and pathological pulmonary conditions.
- Provides an accurate measure of volumes, pressures and flow rates of medical equipment and replaces several measuring instruments at a fraction of their combined costs.
- Can accommodate several types of oxygen measuring sensors and other pressure sensing equipment.

How does the TTL® work?

- Uses two lungs, each with its own range of compliance settings to simulate the pulmonary system.
- The PneuFlo® resistors offer accurate simulation at both upper and lower airway resistance in exact accordance with ASTM standards. These resistors represent the parabolic flow characteristics of the human airway.
- The pressure corrected volume measurements match spirometer volumes measured on an actual patient with the same pulmonary compliance and airway resistance.

Combining lung simulation with the versatility of a personal computer.

To enhance the demonstration of ventilation phenomena and allow the capture and review of data from the TTL®, we've developed the PneuView® Adult Infant System. This system incorporates an interface that communicates with software on a personal computer. The PneuView® system combines the very finest in lung simulation with advanced data acquisition, presentation, and storage.

PneuView® Software

- Visually demonstrates, in real-time, the relationship between pressure, volume, and flow waveforms.
- Provides acquisition, storage, and review of data.
- Tracks ventilator performance trends for up to 72 hours.
- Measures pressure, volume, flow and timing parameters.
- Includes flow/volume and pressure/volume loops.
- Generates concise, yet comprehensive printed reports.



PneuView® Software CALCULATIONS:

- Breath Rate
- Inspiratory Time
- Expiratory Time
- I:E Ratio
- Tidal Volume
- Minute Volume
- Mean Airway Pressure
- Baseline Pressure

Specifications:

Tidal Volume Capacity:

Adult Lung	2.0 L
Infant Lung	200 mL

Residual Lung Volume:

Adult Lung	1.02 L
Infant Lung	70 mL

Size: Approximately 20" x 25" x 8"

Weight: 37 lbs. (16.8 kg)

Lung Compliance (adjustable):

Adult Lung	.01 to .10 L/cmH ₂ O
Infant Lung	.001 to .01 L/cmH ₂ O
Accuracy: +/- 3% (at calibration volumes)	

Airway Resistance (adjustable):

Adult Lung	Rp5, 20 or 50 cmH ₂ O/L/sec
Infant Lung	Rp50, 200 or 500 cmH ₂ O/L/sec
Accuracy: +/- 5% (at calibration flows)	

Single Lung Test Lung - SLTL



Single Adult Lung Simulator

*Quality and Versatility
Built Into Every Unit*

Provides accurate simulation of wide ranges of normal and diseased lung conditions for ventilator testing/calibration and respiratory therapy instruction.



Call 1-800-530-9939 or visit www.michiganinstruments.com to learn more about the SLTL/PneuView[®] test systems from Michigan Instruments.

Single Lung Test Lung

What is the Single Lung Test Lung?

- A portable analog lung system which accurately simulates human pulmonary function for training or testing ventilators under simulated load conditions.
- Visually demonstrates a variety of normal and pathological pulmonary conditions.
- Provides an accurate measure of volumes, pressures and flow rates of medical equipment and replaces several measuring instruments at a fraction of their combined costs.
- Can accommodate several types of oxygen measuring sensors and other pressure sensing equipment.

How does the SLTL work?

- Uses the single adult lung, with its own range of compliance settings to simulate the pulmonary system.
- The built-in PneuView[®] based resistances offer accurate simulation of airway resistance in exact accordance with ASTM standards. These resistances represent the parabolic flow characteristics of the human airway.
- The pressure corrected volume measurements match spirometer volumes measured on an actual patient with the same pulmonary compliance and airway resistance.

Combining lung simulation with the versatility of a personal computer.

To enhance the demonstration of ventilation phenomena and allow the capture and review of data from the SLTL, we've developed the PneuView[®] Single Lung System. This system incorporates an interface that communicates with software on a personal computer. The PneuView[®] system combines the very finest in lung simulation with

PneuView[®] Software

- Visually demonstrates, in real-time, the relationship between pressure, volume, and flow waveforms.
- Provides acquisition, storage, and review of data.
- Tracks ventilator performance trends for up to 72 hours.
- Measures pressure, volume, flow and timing parameters.
- Includes flow/volume and pressure/volume loops.
- Generates concise, yet comprehensive printed reports.



PneuView[®] Software CALCULATIONS:

- Breath Rate
- Inspiratory Time
- Expiratory Time
- I:E Ratio
- Tidal Volume
- Minute Volume
- Mean Airway Pressure
- Baseline Pressure

Specifications:

Tidal Volume Capacity: 2.0 L

Residual Lung Volume: 1.02 L

Size: Approximately 25" x 10" x 13"

Weight: 25 lbs. (11.3 kg)

Lung Compliance (adjustable):

.01 to .10 L/cmH₂O

Accuracy: +/- 3% (at calibration volumes)

Airway Resistance (adjustable):

Rp5, 20 or 50 cmH₂O/L/sec

Accuracy: +/- 5% (at calibration flows)

Training/Test Lung - TTL[®]

Dual Adult Lung Simulator



Quality and Versatility Built Into Every Unit

Provides accurate simulation of wide ranges of normal and diseased lung conditions for ventilator testing/calibration and respiratory therapy instruction.



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Dual Adult TTL[®]

What is the Dual Adult TTL[®]?

- A portable analog dual lung system which accurately simulates human pulmonary function for training or testing ventilators under simulated load conditions.
- Visually demonstrates a variety of normal and pathological pulmonary conditions.
- Provides an accurate measure of volumes, pressures and flow rates of medical equipment and replaces several measuring instruments at a fraction of their combined costs.
- Can accommodate several types of oxygen measuring sensors and other pressure sensing equipment.

How does the TTL[®] work?

- Uses two lungs, each with its own range of compliance settings to simulate the pulmonary system.
- The PneuFlo[®] resistors offer accurate simulation at both upper and lower airway resistance in exact accordance with ASTM standards. The resistors represent the parabolic flow characteristics of the human airway.
- The pressure corrected volume measurements match spirometer volumes measured on an actual patient with the same pulmonary compliance and airway resistance.

Combining lung simulation with the versatility of a personal computer.

To enhance the demonstration of ventilation phenomena and allow the capture and review of data from the TTL[®], we've developed the PneuView[®] Dual Adult System. This system incorporates an interface that communicates with software on a personal computer. The PneuView[®] system combines the very finest in lung simulation with advanced data acquisition, presentation and storage.



PneuView[®] Software

- Visually demonstrates, in real-time, the relationship between pressure, volume, and flow waveforms.
- Provides acquisition, storage, and review of data.
- Tracks ventilator performance trends for up to 72 hours.
- Measures pressure, volume, flow and timing parameters.
- Includes flow/volume and pressure/volume loops.
- Generates concise, yet comprehensive printed reports.

PneuView[®] Software CALCULATIONS:

- Breath Rate
- Inspiratory Time
- Expiratory Time
- I:E Ratio
- Tidal Volume
- Minute Volume
- Mean Airway Pressure
- Baseline Pressure

Specifications:

Tidal Volume Capacity:

2.0 L - each lung
4.0 L total

Residual Lung Volume:

1.02 L - each lung
2.04 L total

Size: Approximately 20" x 25" x 8"

Weight: 37 lbs. (16.8 kg)

Lung Compliance (adjustable):

.01 to .10 L/cmH₂O - each lung
Accuracy: +/- 3% (at calibration volumes)

Airway Resistance (adjustable):

Rp5, 20 or 50 cmH₂O/L/sec
Accuracy: +/- 5% (at calibration flows)

Breath Simulation Module

Add more value to the PneuView® Ventilator Testing and Training Systems.



- The Breath Simulation Module turns the Dual Adult Models 1600 and 5600i into a spontaneous breathing lung system.
- Simulate a spontaneously breathing patient for training or studying the use of CPAP, IMV, SIMV, pressure support of other ventilation model designed for use with breathing patients.
- Test and troubleshoot devices designed to support spontaneously breathing patient for training.
- Measure added work of breathing associated with breathing circuits, assess trigger sensitivity and response of demand flow systems.

Breath Rate:	2-60 Breaths per Minute
Inspiratory Time:	User selectable .50, 1.0, 1.5 & 2.0 seconds (+/- 0.15 sec)
Breath Volume:	50-2000 ml
Manual Mode:	Push button control of individual breaths



Call 1-800-530-9939 or visit
www.michiganinstruments.com for more
information about the Breath Simulation Module.