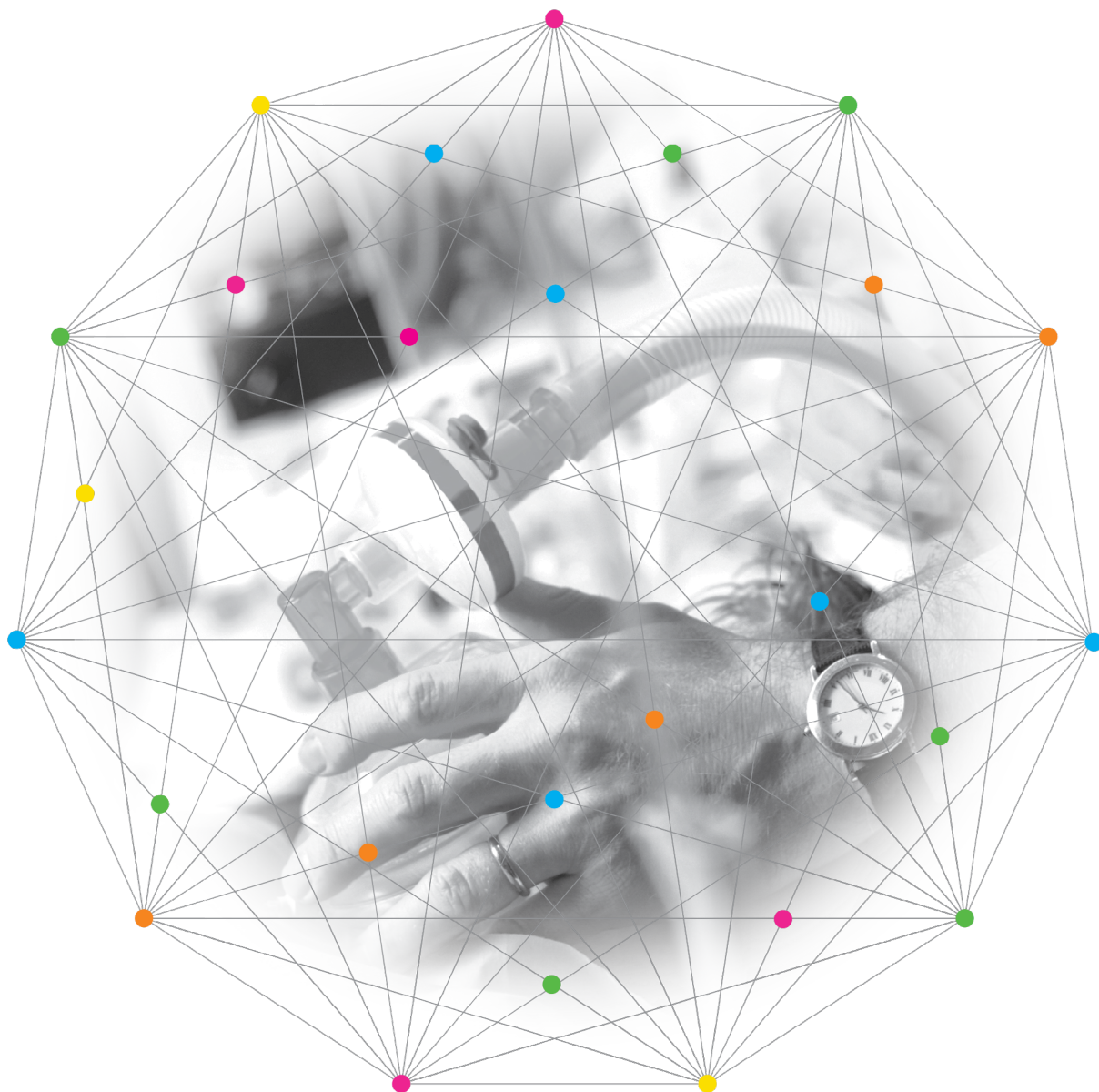


# CERTIFIER® FA VENTILATOR TEST SYSTEMS

FOR GAS FLOW ANALYSIS



UNDERSTANDING, ACCELERATED

# IDEAL FOR HOSPITAL, HOME-CARE, FIELD SERVICE, LABORATORY AND MANUFACTURING

## CERTIFIER® FA PLUS VENTILATOR TEST SYSTEM

Certifier® FA Plus is the full-feature system capable of testing virtually all models of ventilators: adult, pediatric, anesthesia, neonatal and high-frequency.

### Highlights

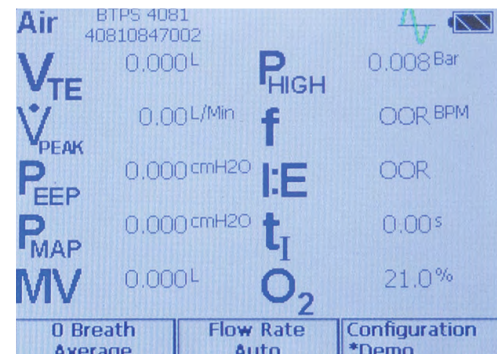
- + Color touch screen graphical user interface
- + Real-time graphing mode
- + Bi-directional flow measurement
- + Data storage using SD Flash card and internal memory
- + Stored data accessible through USB interface
- + Report printing capability
- + Rechargeable battery plus AC operation

### Test Parameters

- + Flow
- + Peak & Minimum Flow
- + Volume (Inhaled and Exhaled)
- + Minute Volume
- + Low Pressure (Differential)
- + Peak & PEEP Pressure
- + Mean Airway Pressure
- + High Pressure
- + Barometric Pressure
- + Inspiratory Time
- + Expiratory Time
- + I:E Ratio
- + Respiratory Rate
- + Gas Temperature
- + Oxygen Concentration (with optional 4073 Kit)



Features	Certifier FA Plus
Gas Calibrations	Air, O <sub>2</sub> , Air/O <sub>2</sub> mixtures, N <sub>2</sub> , CO <sub>2</sub> , N <sub>2</sub> O
Flow Direction	Bi-Directional
Flow & Volume Modes	STP, ATP, BTPS, BTPD, plus user-defined
Temperature & Pressure Compensated	Yes
Max Breath Rate	1500 BPM
High Frequency Ventilators	Yes
High Pressure	-10 to 150 PSI (-.7 to 10 bar) Gauge
Low Pressure	-25 to 150 cm H <sub>2</sub> O Differential
Barometric Pressure	7 to 25 PSIA (500 to 1700 mbar)
Display	Color-Graphic Touch Screen
Batteries	Li-Ion Rechargeable Battery Pack
AC Adapter	Yes
Internal Memory	1 MB
SD Flash Card	Included
Computer Interface	USB
Printing	USB



Displays up to 18 test parameters



Graph up to 2 test parameters

# CERTIFIER FA VENTILATOR TEST SYSTEM

Certifier FA is a low-cost test system capable of testing multiple parameters of ventilator performance.

## Highlights

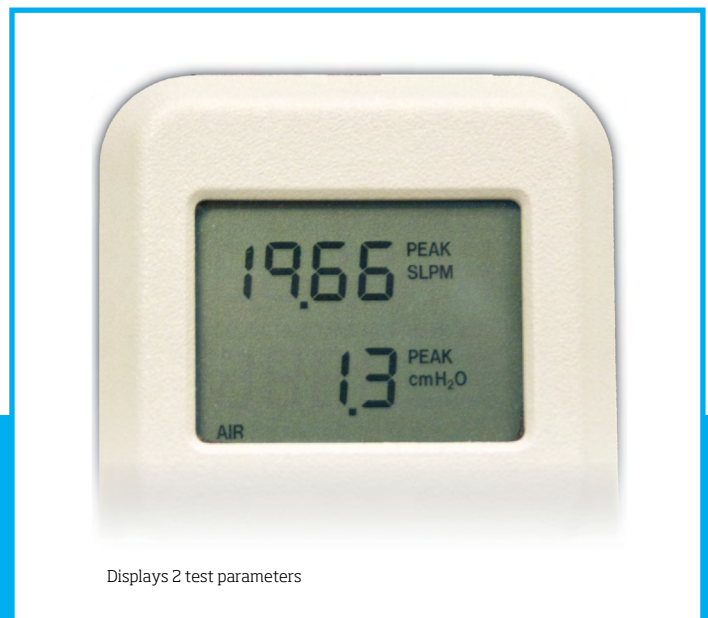
- + Simple, easy to read, user interface
- + Backlit LCD display
- + Entire kit weighs less than 3 lbs (1.4 Kg)
- + Volumes and flow in BTPS, ATP, or STP

## Test Parameters

- + Flow
- + Peak Flow
- + Volume
- + Stacked Volume
- + Minute Volume
- + Low Pressure
- + Peak & PEEP Pressure
- + Barometric Pressure
- + Inspiratory Time
- + I:E Ratio
- + Respiratory Rate
- + Oxygen Concentration (with optional 4073 Kit)



Features	Certifier FA
Gas Calibrations	Air, O <sub>2</sub> , Air/O <sub>2</sub> mixtures, N <sub>2</sub> O
Flow Direction	Uni-Directional
Flow & Volume Modes	STP, ATP, BTPS
Temperature & Pressure Compensated	Yes
Max Breath Rate	120 BPM
High Frequency Ventilators	–
High Pressure	–
Low Pressure	–25 to 150 cm H <sub>2</sub> O Gauge
Barometric Pressure	7 to 30 PSIA (500 to 2000 mbar)
Display	Fixed Segment LCD
Batteries	4-AA Alkaline Batteries
AC Adapter	–
Internal Memory	–
SD Flash Card	–
Computer Interface	–
Printing	–



Displays 2 test parameters



4080 High-flow test system with  
4082 Low-flow kit (sold separately)

## Certifier FA Plus

	Gas/Mode	Range	Accuracy**
Flow-High Flow	Air, O <sub>2</sub>	-200 to +300 slpm*	±2% or ±0.075 slpm
	Air/O <sub>2</sub> Mixtures	0 to 300 slpm	±4% or ±0.1 slpm
	N <sub>2</sub>	-200 to +300 slpm	±3% or ±0.1 slpm
	CO <sub>2</sub>	-40 to +40 slpm	±3% or ±0.1 slpm
Flow-Low Flow	Air, O <sub>2</sub>	0.01 to 20 slpm	±2% or ±0.01 slpm
	N <sub>2</sub> , CO <sub>2</sub>	0.01 to 20 slpm	±3% or ±0.01 slpm
	N <sub>2</sub> O	0.01 to 20 slpm	±4% or ±0.025 slpm
Volume-High Flow-Inhaled	Air, O <sub>2</sub>	0.01 to 10 liters STP	±2% Plus 0.02 liters
	Air/O <sub>2</sub> Mixtures	0.01 to 10 liters STP	±4% Plus 0.02 liters
Volume-High Flow-Exhaled	Air, O <sub>2</sub>	0.01 to 10 liters STP	±3% Plus 0.03 liters
	Air/O <sub>2</sub> Mixtures	0.01 to 10 liters STP	±4% Plus 0.04 liters
Volume-Low Flow-Inhaled	Air, O <sub>2</sub>	0.01 to 10 liters STP	±2% or ±0.01 liters
	N <sub>2</sub> O	0.01 to 10 liters STP	±4% or ±0.01 liters
Minute Volume-High Flow	–	0.01 to 100 liters STP	±3%
Minute Volume-Low Flow	–	0 to 10 liters STP	±3%
Respiratory Times	Ti, T <sub>ip</sub> , Te	0.04 to 30 seconds	±2% or ±0.01 seconds
I:E Ratios	I:E, I:E <sub>ip</sub>	1:100 to 100:1	±4%
Respiratory Rate	f	1 to 1500 breaths per minute	±2% or 0.1 bpm
Low Pressure	All	-25 to +150 cm H <sub>2</sub> O	±0.5% or ±0.15 cm H <sub>2</sub> O
High Pressure	–	-10 to +150 PSI (-0.7 to 10 bar)	±1% or 0.1 PSI (7 mbar)
Barometric Pressure	–	7 to 23 PSI (500 to 1600 mbar)	±0.16 PSI (11 mbar)
Oxygen Concentration	–	21% to 100%	2% of concentration

\* slpm = Standard Liters per Minute

\*\*Accuracy stated as a percent of reading at TSI standard gas conditions.  
See operators manual for more complete specifications

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4070 High-flow test system with  
4073 Oxygen sensor kit (sold separately)

## Certifier FA

	Gas	Range	Accuracy**
Flow-High Flow Module	Air, O <sub>2</sub>	0 to 300 slpm*	±2% or ±0.075 slpm
	Air/O <sub>2</sub> Mixtures	0 to 300 slpm	±4% or ±0.1 slpm
Flow-Low Flow Module	Air, O <sub>2</sub>	0.01 to 15 slpm	±2% or ±0.01 slpm
	N <sub>2</sub> O	0.01 to 15 slpm	±4% or ±0.025 slpm
Volume-High Flow-Inhaled	Air, O <sub>2</sub>	0.01 to 10 liters STP	±2% Plus 0.02 liters
	Air/O <sub>2</sub> Mixtures	0.01 to 10 liters STP	±4% Plus 0.02 liters
Volume-Low Flow-Inhaled	Air, O <sub>2</sub>	0.01 to 9.999 liters STP	±2% or ±0.01 liters
	N <sub>2</sub> O	0.01 to 10 liters STP	±4% or ±0.01 liters
Minute Volume-High Flow	–	0.01 to 99 liters STP	±7%
Minute Volume-Low Flow	–	0 to 9.999 liters STP	±7%
Inspiratory Time	–	0.25 to 60 seconds	±0.01 seconds
I:E Ratio-High Flow	–	1:100 to 100:1	±5%
I:E Ratio-Low Flow	–	1:15 to 15:1	±5%
Respiratory Rate	–	0.5 to 120 breaths per minute	±5%
Low Pressure	–	-25 to +150 cm H <sub>2</sub> O	±0.75% or ±0.2 cm H <sub>2</sub> O
Barometric Pressure	–	7 to 29 PSI (500 to 2000 mbar)	±0.16 PSI (11 mbar)
Oxygen Concentration	–	21% to 100%	2% of concentration

### TO ORDER – CERTIFIER FA PLUS

Model	Description
4080	High-Flow Standard Kit

#### Optional Modules and Accessories

Model	Description
4073	Oxygen Sensor Kit
4082	Low-Flow Module

Part #	Description
1208061	Extra battery pack and charger kit
1303860	Printer cable

### TO ORDER – CERTIFIER FA

Model	Description
4070	High-Flow Standard Kit

#### Optional Modules and Accessories

Model	Description
4073	Oxygen Sensor Kit
4072	Low-Flow Module

Part #	Description
1319288	Hard shell carrying case



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**TSI Incorporated** - Visit our website [www.tsi.com](http://www.tsi.com) for more information.

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