



® Knowledge
Beyond
Measure.



TSI[®] Certifier™ Flow Analyzers

Ventilator Test Systems



TSI® - The Experts in Flow Measurement

Certifier™ Pro and Certifier™ Plus Flow Analyzers

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TSI® is now offering ISO 17025:2017 accredited calibrations for mass flow meters and Certifier™ flow analyzers

TSI's accredited calibration offerings conform to the ISO 17025 standard. Accredited calibration certificates include multi-point data, pass/fail statements, and flow measurement uncertainty values.

Customer Benefits of ISO 17025 Accredited Instruments Include:

- Reduces the risk of audit or compliance failures
- Saves time and money with a single document with full traceability
- Demonstrates product safety and efficacy
- Increases confidence in the measurements from your test instruments
- Signals your high quality and improves your reputation

ISO 17025 accreditation is a globally-recognized benchmark for precision, accuracy and reproducibility of analytical results. It is an international standard used as a means of determining the technical competence of laboratories to perform specific types of testing, measurement and calibration.

Scan QR code or email answers@tsi.com to learn more about accredited calibrations for TSI® flow instruments



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TSI® Flow Instruments - At Your Service Worldwide

Standard Service or 17025 Accredited

- 📍 Shoreview, US
- 📍 High Wycombe, UK

Standard Service

- 📍 Singapore



ISO
17025
Certified

We offer ISO17025 Accredited Calibration for select products at our Shoreview, US and High Wycombe, UK facilities.



Testing Biomedical Equipment Has Never Been Easier

Benchtop and Handheld Test Systems

Certifier™ flow analyzers are multi-functional test instruments used by manufacturers and biomedical professionals to test a wide range of respiratory medical devices such as mechanical ventilators, anesthesia machines, air-oxygen blenders, oxygen concentrators, insufflators, and CPAPs, APAPs, or BiPAPs.

Intuitive and familiar interface is simple to use

- High resolution, color touchscreen
- Displays 1 to 18 parameters at a time
- View all data and settings from a single screen

Easy instrument setup and operation

- Automatic breath detection
- Real-time graphing and trigger indicators
- User configurations to save test setups

Measurements you can trust

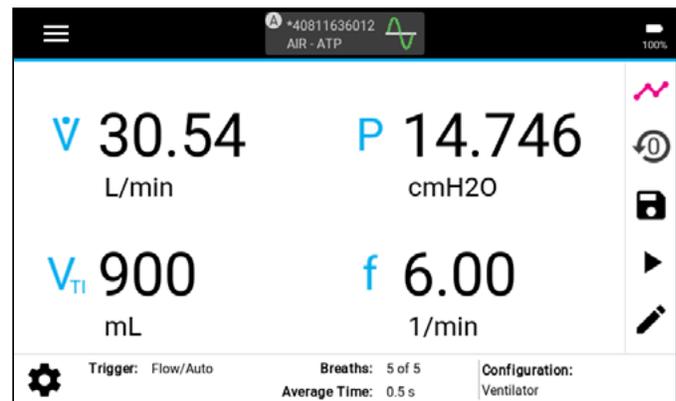
- Measures 31 different test parameters
- Highly accurate and reliable flow measurements
- Oxygen sensor and anesthesia sensor integration options

Data acquisition and reporting options

- Pause display, save test data and screenshots
- Saves to Certifier and exports via USB
- Optional wireless mobile app integration

Robust instrument design

- Field serviceable rechargeable battery
- Durability to withstand daily use and transport
- Certifiers include 2-year standard warranty



Certifier™ Flow Analyzers Product Family

TSI® offers a portfolio of Certifier™ flow analyzer solutions to best meet individuals' test equipment preferences and biomedical testing needs. Certifier™ flow analyzer models are complimentary to each other and users can easily switch between the different models without additional product training.

Same User Interface and Operation

- Same touchscreen operation to add, change, or move measurement parameters and units
- Same screen layout and graphical elements
- Font size automatically resizes based on number of measurements selected

Shared Components

- Many accessories can be shared between Certifier models
- Such as inlet filters, connectors, battery pack, power supply, test lungs, stylus, and more

Common Functionality

- Configurations can be transferred between Certifier models
- Automatic breath detection and trigger indicators
- Save data and screenshots with USB export
- Oxygen sensor calibration process

Choose the Certifier model that's right for you

Models	Certifier Pro Benchtop 4090	Certifier Plus Handheld 4080-S, 4080-F
System Design	All-in-one design, integrates high and low flow channels plus oxygen sensor	Modular design, cable connects flow module(s) to interface module
Flow Accuracy	1.75% of reading	2% of reading
Oxygen Sensor	Internal	External with optional 4073 kit
Battery Operation	6-8 hours	8+ hours
User Benefits	Faster test setups and fewer components to manage	Highly portable with multiple mounting options
Ordering	Easy to order with a single model number	Flexibility to order a test system or individual modules as needed



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Certifier™ Pro Flow Analyzer Benchtop Test System

Model 4090

Combines measurements in a single analyzer

- High flow, low flow, pressures
- Integrated oxygen sensor, TSI® calibrated

High accuracy measurements

- Flows at 1.75% of reading
- Pressures at 0.5% of reading

Exceptional usability

- Less cabling for easy test setups
- Battery operation (6 hours) power down flow channels to extend operation
- O₂ sensor and battery are field replaceable



Certifier™ Pro Flow Analyzer Model 4090 Accessories (also available separately)

Specify	Description
4090	Certifier Pro Flow Analyzer
1602341	High Flow Inlet Filter, 22 mm x 22 mm M/F, HEPA
1602317	Low Flow Inlet Filter, 1/4 inch, HEPA, plus tubing
1611221	Adapter, high pressure port
1102091	Adapter, 22 mm x 6 mm, qty 2 (to connect to Low Flow Filter to high flow channel using 130373 F/F adapter)
1102093	Adapter, 15 mm ID x 22 mm OD
130373	Adapter, 22mm F to 22mm F, Straight
130374	Adapter, 15mm M to 22mm F, Pediatric cuff
1611330	Airway pressure fitting with screen
3002053	Pressure tubing, silicone, 1/8-inch ID x 1/4-inch OD x 48 in.
130400	Power supply 100/240 VAC to +12 VDC 2.1 mm plug, includes plug set with NA, UK, EU, CN, SAA connectors
130377	Oxygen sensor cell (installed)
130385	Battery, 4 cell Lithium-Ion 7.2 V 6.4 Ahr (installed)
130375	Hanging Clip (to hang the instrument from a ventilator rail)
130378	Optional Carrying Case <ul style="list-style-type: none"> ▪ Fitted for the Certifier Pro, dimensions 19 x 14.75 x 6.5 inches ▪ Hard outer shell and foam protection



Certifier™ Plus Flow Analyzer Handheld Test System

Models 4080-S and 4080-F

A portable, handheld flow analyzer

- Compact and lightweight
- Battery operation (8 hours)
- Multiple mounting options

High accuracy measurements

- Flows at 2% of reading
- Pressures at 0.5% of reading

Modular design offers flexibility

- Buy in pieces to stay below capital budget limits
- Only purchase the components that you need
- Maximize testing up-time with a second flow module



Certifier™ Plus High Flow Test System, Standard Kit

Model 4080-S

- Includes 4089 interface module, 4081 high flow module, and accessories



Certifier™ Plus High Flow Test System, Full Kit

Model 4080-F

- Includes 4089 interface module, 4081 high flow module, 4073 oxygen sensor kit, test lung, mounting kit, and more

Certifier™ Plus Primary Accessories

Certifier™ Plus Oxygen Sensor Kit

Model 4073

- Measures oxygen concentration
- O₂ sensor connects to high flow module
- 4073 kit not compatible with Certifier™ Pro



Certifier™ Plus Low Flow Module Kit

Model 4082

- For testing the fresh-gas delivery on anesthesia systems
- Measures N₂O and CO₂ gas flows
- Connects to 4089 interface module



Certifier™ Plus Mounting Kit

Part number 130399

- Securely mount the Certifier Plus to ventilator rails, mobile carts, and more
- Attach interface module and a flow module (as shown below)



Upgrade from Certifier™ FA+ to Certifier™ Plus

Certifier™ Plus Interface Module

Model 4089 or 4089-F

- Larger display, 8-hour battery operation, mounting options
- 4089 works with your existing 4081 and 4082 flow modules
- Familiar interface minimizes new equipment training



Certifier Legacy
4080 FA+
Certifiers not shown at scale

Certifier™ Plus Instrument Kits

Parts	Description	4080-S High Flow System, Std. Kit	4080-F High Flow System, Full Kit	4081 High Flow Module Kit	4082 Low Flow Module Kit	4089 Interface Module, Std. Kit	4089-F Interface Module, Full Kit
4089	Interface module	■	■			■	■
4081	High flow module	■	■	■			
4082	Low flow module				■		
4073	Oxygen sensor kit		■				■
1602341	Inlet filter, 22mm M/F	■	■	■			
1611221	Adapter, high pressure	■	■	■			
1102091	Adapters, 22mm x 6mm (2)	■	■	■			
1102093	Adapter, 15mm ID x 22mm OD	■	■	■			
1611330	Airway pressure fitting	■	■	■			
3002053	Pressure tubing, silicone	■	■	■			
2913110	Velcro strap (for use with 4081)	■	■	■			
130384	Flow module cable, coiled	■	■			■	■
130400	Power supply with plug set	■	■			■	■
130385	Li-ion battery (installed)	■	■			■	■
130392	Protective cover (attached)	■	■			■	■
130389	Hybrid carrying case	■				■	
130396	Adult test lung, 1.0L		■				■
130399	Mounting kit, interface + flow		■				■
130373	Adapter, 22mm F to 22mm F		■				■
130374	Adapter, 15mm M to 22mm F		■				■
130370	Stylus, capacitive touch		■				■
130393	Deluxe carrying case, fitted		■				■
1602342	Inlet Filter, 3/8 to 1/2 inch barb				■		
1601180	Coupling, 3/8 inch tube				■		
1601179	Adapter, 3/8 inch tube to barb				■		

Certifier™ Featured Accessories

Anesthesia Sensor Kit

Part number 4093

- Multi-gas sensor for testing anesthesia machines
- Measures concentration of anesthetic agents plus N₂O and CO₂
- Plug-and-play operation with both Certifier™ models

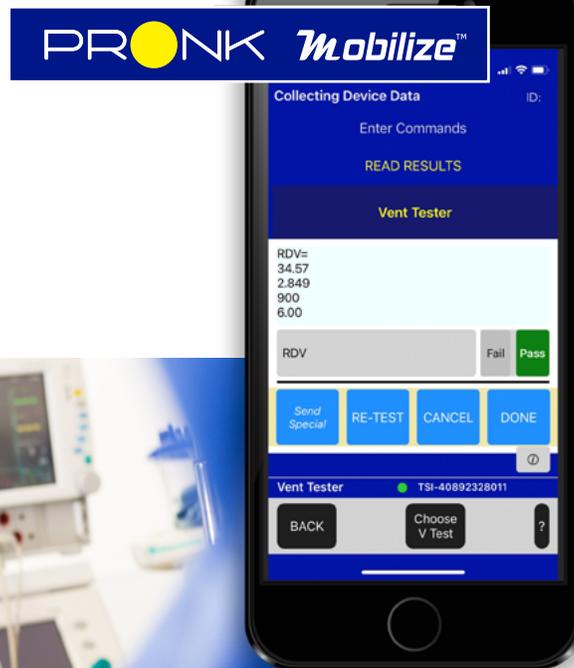


Pronk Mobilize™* Integration Chip

Part number 130401

- Enables your Certifier™ Pro or Plus to wirelessly communicate with the Pronk Mobilize™ app
- Real-time, wireless data capture and control of the Certifier from your iOS mobile device
- Run checklists, acquire data, and automatically generate test reports through the Pronk Mobilize™ app

* Pronk Mobilize™ products only currently available in North America.



Features and Specifications

Certifier™ Flow Analyzer Test Systems

Models 4090, 4080-S, 4080-F

Features	Certifier Plus
Gas Calibrations	Air, O ₂ , Air/O ₂ mixtures, N ₂ , CO ₂ , N ₂ O
Flow Direction	Bi-directional (4081 high flow module)
Gas Conditions	STP, ATP, BTPS, BTPD, plus user-defined
Temperature & Pressure Compensated	Yes
Max Breath Rate	1500 BPM
Pressure Measurements	Low, High, Barometric
Dual Flow Module Capability	Yes
Display	5-inch color touchscreen display up to 18 test parameters
User configurations	Save, load, and transfer test setups
Batteries	Li-Ion rechargeable (4-cell)
AC adapter	Yes
Data acquisition	Save measurement data and screen captures to internal memory, USB export
Export / Import	USB

4090 Specifications – Flow

Measurements	Gas/Mode	Range	Accuracy**
Flow Rate – High Flow	Air, O ₂	-200 to +300 slpm*	± 1.75% plus 0.05 slpm
	Air/O ₂ mixtures	-200 to +300 slpm	± 3% plus 0.075 slpm
	N ₂	-200 to +300 slpm	± 3% plus 0.05 slpm
Flow Rate – Low Flow	CO ₂	-40 to +40 slpm	± 3% plus 0.05 slpm
	Air, O ₂	0.01 to 20 slpm	± 1.75% plus 0.008 slpm
	N ₂ O	0.01 to 20 slpm	± 3% plus 0.025 slpm
	N ₂	0.01 to 20 slpm	± 3% plus 0.01 slpm
	CO ₂	0.01 to 20 slpm	± 3% plus 0.01 slpm

4080 Specifications – Flow

Measurements	Gas/Mode	Range	Accuracy**
Flow Rate – High Flow	Air, O ₂	-200 to +300 slpm	± 2% or 0.075 slpm
	Air/O ₂ mixtures	-200 to +300 slpm	± 3% or 0.1 slpm
	N ₂	-200 to +300 slpm	± 3% or 0.075 slpm
Flow Rate – Low Flow	CO ₂	-40 to +40 slpm	± 3% or 0.075 slpm
	Air, O ₂	0.01 to 20 slpm	± 2% or 0.008 slpm
	N ₂ O	0.01 to 20 slpm	± 3% or 0.025 slpm
	N ₂	0.01 to 20 slpm	± 3% or 0.01 slpm
	CO ₂	0.01 to 20 slpm	± 3% or 0.01 slpm

* slpm = Standard Liters per Minute

** Accuracy stated as percent of reading at TSI standard gas conditions

4090 and 4080 Specifications – Volumes, Pressures, Timing, Frequency, Oxygen Concentration, Temperature

Measurements	Gas/Mode	Range	Accuracy**
Inhaled Volume – High Flow	Air, O ₂	0.001 to 10 liters	± 2% plus 0.02 liters
	Air/O ₂ mix, N ₂ , CO ₂	0.001 to 10 liters	± 3% plus 0.02 liters
Inhaled Volume – Low Flow	Air, O ₂	0.001 to 10 liters	± 2% plus 0.005 liters
	N ₂ O, N ₂ , CO ₂	0.001 to 10 liters	± 3% plus 0.005 liters
Exhaled Volume – High Flow	Air, O ₂	0.001 to 10 liters	± 2.5% plus 0.02 liters
	Air/O ₂ mix, N ₂ , CO ₂	0.001 to 10 liters	± 3% plus 0.04 liters
Minute Volume – High Flow	Air, O ₂ , Air/O ₂ mix, N ₂ , CO ₂	0.001 to 100 liters	± 3% plus 0.02 liters
Minute Volume – Low Flow	Air, O ₂ , N ₂ O, N ₂ , CO ₂	0.001 to 100 liters	± 3% plus 0.005 liters
Low Pressure	PIP, PEEP, P _{MAP} , P _{MIN} , P _Δ , P _{PLAT}	25 to +150 cm H ₂ O	± 0.5% or 0.15 cm H ₂ O
High Pressure	P _{High}	-10 to +150 psi	± 1% or 0.1 psi
Absolute Pressure	P _{ABS}	50 to 200 kPa	± 0.7% kPa
Static Compliance	C _{STAT}	0.01 to 1000 cm H ₂ O/mL	± 3% or 1 cm H ₂ O/mL
Respiratory Time	t _I , t _{IP} , t _{HP} , t _E , t _R	0.04 to 30 secs	± 2% or 0.01 secs
Respiratory Rate	f	1 to 1500 bpm	± 2% or 0.01 bpm
I:E Ratio	I:E, I:E _{HP}	1:100 to 100:1	± 4% of reading
Oxygen Concentration	O ₂ %	21% to 100%	± 2% of reading
Temperature	T	5 to 40°C	± 1°C at flow rates above 2 L/min

Certifier™ Flow Analyzer Service

- TSI® optimizes the calibration of your Certifier Flow Analyzer, third-party labs can only verify your instrument
- TSI® Service typically turns your instrument around in 1-week
- Service your Certifier Flow Analyzer from the nearest TSI® service center

Quality Guard Service Plans

- An easy way to budget for and manage your TSI® equipment service
- Plans include extended bumper-to-bumper warranty plus annual clean and calibration
- Multi-year plans are available for new Certifier flow analyzer and flow meter instruments



TSI® Factory vs. Third-Party Service:

	TSI®	Third-Party
Instrument Calibration Verification ¹	✓	✓
As-Found Calibration Certificate	✓	✓
Adjustment of Sensor Calibrations	✓	—
As-Left Calibration Certificate ²	✓	—
Factory-Trained Technicians	✓	—
Perform Repairs with Original Factory Parts	✓	—
Update Instrument Firmware (if applicable)	✓	—
Program New Calibration Date into Instrument	✓	—
90-Day Service Warranty	✓	—

¹ Calibration Verification is a multi-point calibration check by TSI prior to performing service on the instrument.

² As Left Calibration Certificate is a multi-point check to verify the sensor adjustment and calibration curve fitting.



Find out more at
[tsi.com/flow_service](https://www.tsi.com/flow_service)



Knowledge Beyond Measure.

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