

Room Pressure Solutions for Healthcare Facilities



CONTROLLED ENVIRONMENTS

Critical Environments



TRUST. SCIENCE. INNOVATION.

Design your Healthcare



Safety

Whether you are designing or managing healthcare facilities, safety is crucial. In isolation rooms, operating suites, pandemic preparedness areas, and hospital pharmacies, it's all about safety. These rooms need to be pressurized to control the movement of airborne pathogens, keeping patients, visitors, and medical staff safe. And when it comes to safety, you want the most precise measurement available. PRESURA™ Room Pressure Monitors offer the best-in-class measurement of low pressures, specifically designed for hospital applications.

Compliance

PRESURA™ Room Pressure Monitors make it easy for you to comply with various parts of the following guidelines and regulations:

- ANSI/ASHRAE/ASHE Standard 170-2008, *Ventilation of Health Care Facilities*
- The American Institute of Architects (AIA), 2006 *Guidelines for Design and Construction of Health Care Facilities*
- Centers for Disease Control (CDC), *Guidelines for Environmental Infection Control in Health Care Facilities*
- United States Pharmacopeia (USP), General Chapter <797>, *Guidebook to Pharmaceutical Compounding – Sterile Preparations*

Risk Management

Managing risk in healthcare facilities is of paramount importance as regulatory bodies are becoming increasingly demanding to ensure public safety. You need to take necessary steps to ensure safety as well as document those safe conditions. PRESURA™ Room Pressure Monitors seamlessly integrate into Building Management Systems (BMS) where data can be logged and tracked over long periods of time. Recorded information can include room status, alarms, pressure levels, and air change rates. Managing risk starts with PRESURA™ Room Pressure Monitors.

Facility With Confidence

TSI — The Proven Leader

For over 20 years, leading healthcare facilities have relied on TSI's PRESURA™ Hospital Isolation Monitors for effective, 24/7 monitoring of isolation rooms. Over 50,000 TSI measurements are used every day to ensure safety in leading healthcare facilities. Engineers across the globe have made TSI's PRESURA™ Hospital Isolation Monitors "The Standard" for low pressure room monitoring applications. Design your next healthcare facility with confidence when you choose PRESURA™ Room Pressure Monitors.

Precision Measurements

In Hospital Isolation Rooms and Operating Suites, it's all about safety. And when it comes to safety, you want precision measurements designed for your applications. TSI's unique pressure sensor, based on thermal anemometry, provides very accurate results at the point of interest, typically 0.01" H₂O (2.5 Pa). General HVAC pressure transducers, that drift, simply can't measure up. Measure with confidence when you choose PRESURA™ Room Pressure Monitors.

Simple and Robust

Contractors give PRESURA™ Room Pressure Monitors high marks for easy installation, wiring and configuring. Once set up, the products provide simple visual indicators (green/red) of room condition for medical staff. If potentially unsafe conditions occur, local visual and audible alarms provide an indication of room condition, while remote alarms can provide instance notification to maintenance personnel through a BMS system or to a nurse's station via alarm contacts. PRESURA™ Room Pressure Monitors are safe and simple.



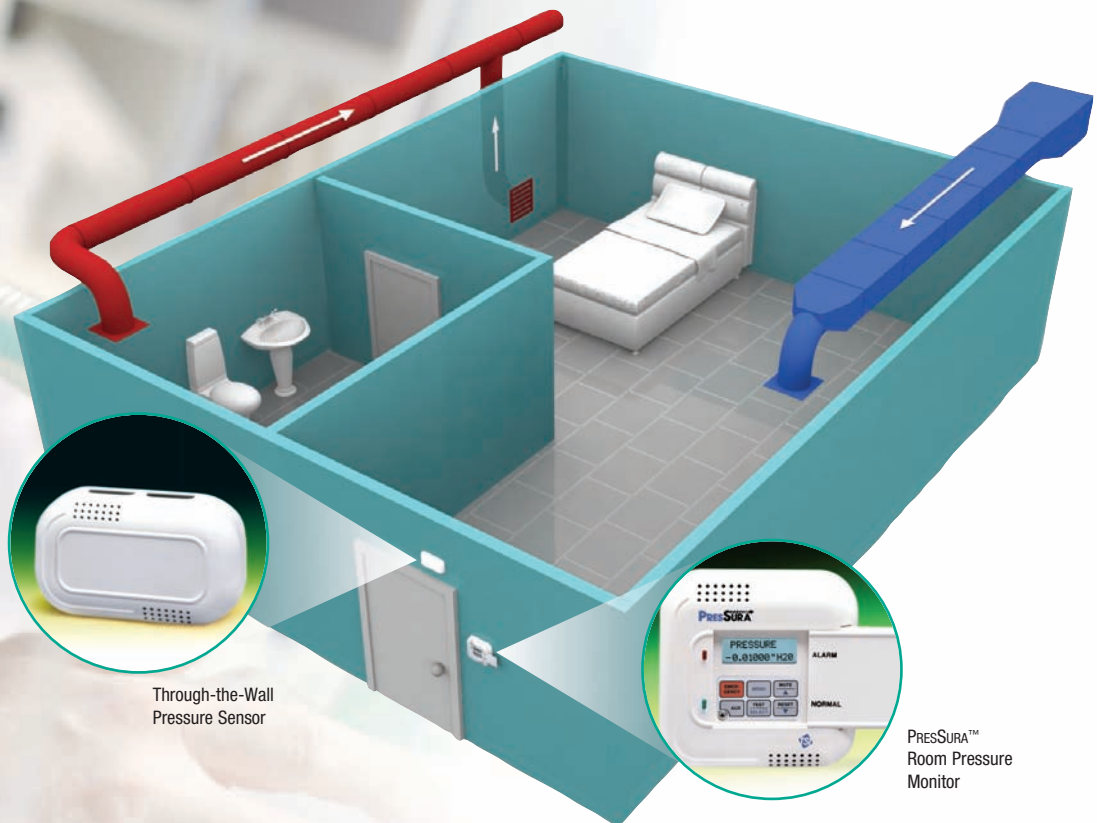
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Isolation Rooms

PRESURA™ Room Pressure Monitors are designed to monitor both Airborne Infection Isolation (AII) Rooms, and Protective Environment (PE) Rooms. All Rooms maintain a slight negative pressure (-0.01" H₂O, -2.5 Pa) and 'isolate' infected patients from spreading disease to staff or other patients. PE rooms maintain a slight positive pressure (+0.01" H₂O, +2.5 Pa) and 'protect' immunocompromised patients' from unwanted airborne pathogens. Both types of isolation rooms require permanently installed devices to continuously monitor room pressure, which is exactly what PRESURA™ Room Pressure Monitors are designed to do.



Through-the-Wall
Pressure Sensor

PRESURA™
Room Pressure
Monitor

Spread Infections

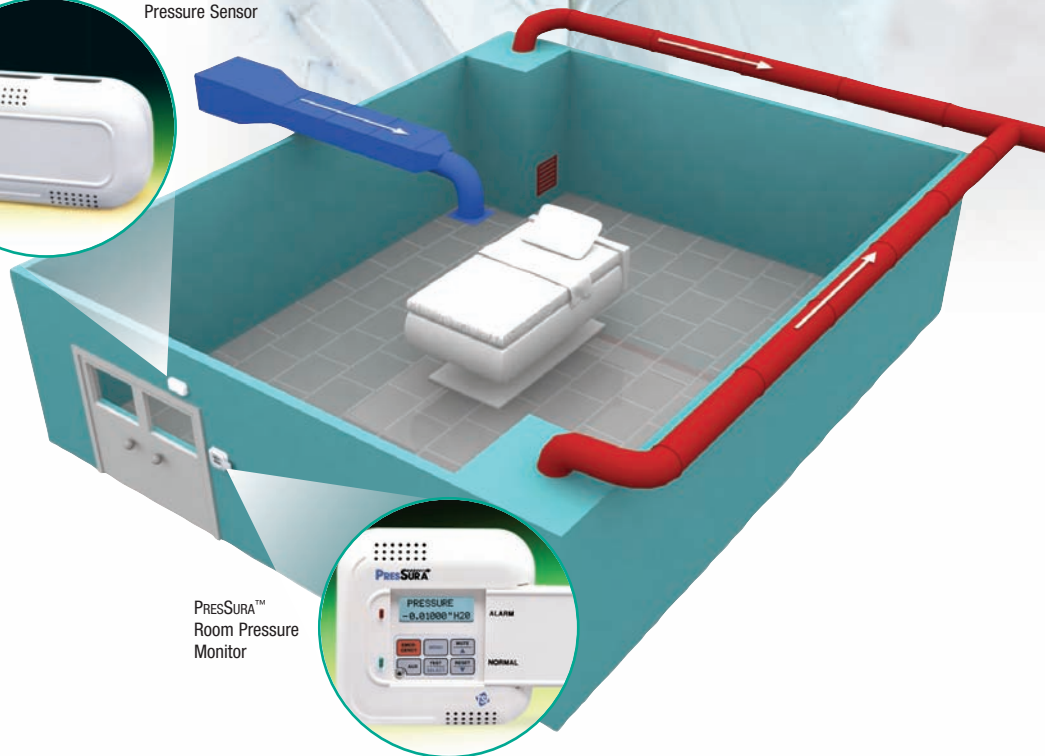


Operating Rooms

Operating rooms require monitoring of a slight positive pressure (+0.01" H₂O, +2.5 Pa) so airborne bacterium does not enter the operating rooms and infect patients while in surgery. In addition, because of the importance to move air, it is necessary to have a high air change rate, and monitor the ACH. The PRESURA™ Room Pressure Monitor accepts flow inputs from many different flow devices including flow stations and valves. The PRESURA™ Room Pressure Monitor can then easily calculate ACH rates and can provide alarms if flows drop below design levels.



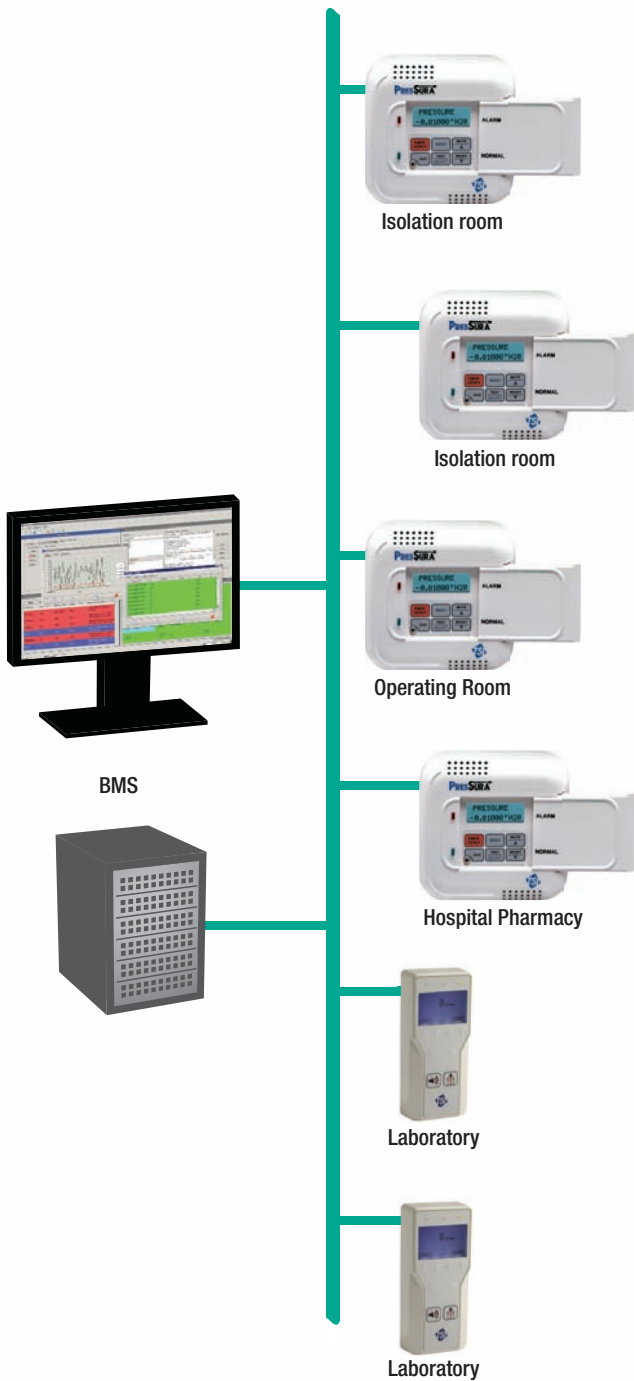
Through-the-Wall Pressure Sensor



PRESURA™ Room Pressure Monitor

Additional Healthcare Room Pressure Applications

- **Hospital Pharmacies:** With USP <797>, pharmacies mixing sterile compounds are now considered clean areas and require pressurization and particle testing.
- **Pandemic Preparedness:** With the properly designed, selected, and configured PRESURA™ Room Pressure Monitor, changing from a normal hospital room to a negative room for a pandemic is just a switch away.
- Other rooms requiring pressurization include intensive care rooms, laboratories, burn units, bronchoscopy rooms, construction zones, food prep centers, laundry areas and more – the PRESURA™ Room Pressure Monitors do it all.



Seamless Integration into Your Building Management System

TSI's PRESURA™ Room Pressure Monitor products are easily integrated into your building management system (BMS) to record alarms and trend data. PRESURA™ Room Pressure Monitor devices tie seamlessly into BMS systems using the following protocols:

- BACnet®
- LonWorks®
- Modbus™
- Johnson Controls N₂



FMS 5.0 Software

TSI offers FMS 5.0 Software, which enables 21 CFR Part 11 compliance to minimize risk and maximize control. FMS can be used to monitor:

- Pressures, flows, and ACH rates in isolation rooms
- Particle counts, ACH, and environmental conditions hospital pharmacies
- Critical parameters of temperature and humidity in blood banks
- Room conditions in in vitro fertilization clinics

Ensure the highest level of data integrity for critical environments with FMS 5.0 Software.

Solutions from TSI

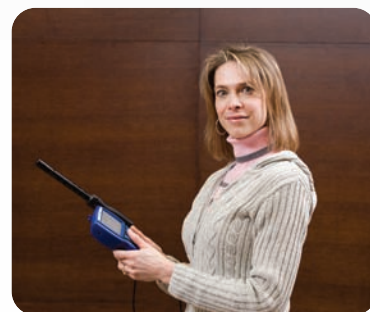


Trust TSI For...

Laboratory Controls: TSI offers world-class laboratory controls that provide an increased level of safety with optimal energy savings for your laboratory design. FHC50 Fume Hood Controllers maintain safe operating levels at each hood, while SureFlow Room Control Systems provide the flexibility of design you need to balance control and energy efficiency.



IAQ: Providing a comfortable, safe and healthy indoor environment is an increasingly important concern in healthcare facilities. Good air quality can enhance productivity and reduce lost days due to absence. TSI's Q-TRAK® IAQ Meters and DUSTTRAK® Dust Monitors set the standard for IAQ investigations.



Contamination Control:

AEROTRAK™ Particle Counters help to certify clean rooms and critical spaces like hospital pharmacies, ensuring safety and compliance. They are also used to test filtration systems like those found in operating rooms and other vital areas.

TSI's offering includes portable, handheld and remote particle counters. When tied into TSI's FMS software, a compliant monitoring system is created for recording critical environmental data.



TAB/Commissioning/Energy Savings:

Healthcare facilities, with their unique needs and specialized rooms, can consume significant amounts of energy. Performing commissioning studies looking for energy saving opportunities, is easily done with the right tools, like TSI's VELOCICALC® Air Velocity Meters and Alnor Balometer® Capture Hoods. These best-in-class instruments, utilized by TAB professionals, accurately measure velocities, flows, temperatures, and humidity helping you to optimize energy usage in your facility.



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Parameters and Features Chart

The chart below is a guide for selecting an instrument to best fit your measurement needs.

	TSI's Low Pressure Sensor	Visual Alarms	Audible Alarms	Alarm Delays	Keyswitch Option	Accepts Flow Input/ACH	2nd Pressure Sensor Input	Door Switch Input	Alarm Relay Contacts	Analog Output	Controls Exhaust Damper/Valve	Pressure Transducer Input	RS-485 (Modbus, Johnson N2)	LonWorks Compatible	BACnet MS/TP Compatible
8630-SM	•	•	•	•	•				•	•					
8630-PM	•	•	•	•	•	•	•	0	•	•			•		
8630-SC	•	•	•	•	•	•			•	•	•		•		
8630-PC	•	•	•	•	•	•	•	0	•	•	•		•		
8630-CRM	0	•	•	•		•	•		•	•		0	•		
8630-CRC	0	•	•	•		•	•		•	•	•	0	•		
8631-HM	•	•	•	•	•	•	•	0	•					0	0
8631-HC	•	•	•	•	•	•	•	0	•		•			0	0
8631-CRM	0	•	•	•		•	•		•	•		0		0	0
8631-CRC	0	•	•	•		•	•		•	•	•	0		0	0

• = Feature of Instrument 0 = Optional versions available

TSI's Customers

Thousands of healthcare facilities around the globe rely on PRESURA™ Room Pressure Monitors each and every day to verify safety in isolation rooms, operating rooms, and other specialized spaces. A sample of customers utilizing TSI includes:

- Mayo Clinics
- Kaiser Healthcare System
- VA Medical Centers
- Walter Reed Army Medical Center
- UCLA Medical Center
- University of Texas Hospitals
- Brigham's and Women's Hospital, Boston
- University of Minnesota Hospital
- Mount Sinai Medical Center, New York
- U.S. Navy Hospitals
- Johns Hopkins
- Jeroen Bosch Hospital, Netherlands

Modbus, LonWorks, and BACnet are registered trademarks of Modicon Inc., Echelon Corp., and ASHRAE respectively.

TSI Incorporated serves a global market by investigating, identifying and solving measurement problems. As an industry leader in the design and production of precision instruments, TSI partners with research institutions and customers around the world to set the standard for measurements relating to aerosol science, air flow, health and safety, indoor air quality, fluid dynamics and biohazard detection. With headquarters based in the U.S. and field offices throughout Europe and Asia, TSI has established a worldwide presence in the markets we serve. Every day, our dedicated employees turn research into reality.

TSI Incorporated - 500 Cardigan Road, Shoreview, MN 55126-3996 USA
USA Tel: +1 800 874 2811 E-mail: info@tsi.com Website: www.tsi.com
UK Tel: +44 149 4 459200 E-mail: tsiuk@tsi.com Website: www.tsiinc.co.uk
France Tel: +33 491 11 87 64 E-mail: tsifrance@tsi.com Website: www.tsiinc.fr
Germany Tel: +49 241 523030 E-mail: tsigmbh@tsi.com Website: www.tsiinc.de
India Tel: +91 80 41132470 E-mail: tsi-india@tsi.com
China Tel: +86 10 8260 1595 E-mail: tsibeijing@tsi.com
Singapore Tel: +65 6595 6388 E-mail: tsi-singapore@tsi.com



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