



# setra<sup>lite</sup><sup>™</sup>

## Installation & Operating Guide

**Setra Systems, Inc.**  
159 Swanson Road, Boxborough, MA 01719  
800.257.3872 • [www.setra.com](http://www.setra.com)



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# 1.0 Introduction

The Setra Lite provides a simple, cost-effective, and accurate way to measure and display room differential pressure in areas today that require manual verification. For local staff managing area, Setra Lite has a light ring that is green or red, showing a clear indication of room conditions. For the facility manager, using the Lite means the frequency of preventative maintenance walk-by inspections can be reduced because Setra Lite is monitoring the space.

Setra Lite has many features found only in larger, more complex room pressure monitors. These include a bright light ring that can be seen at an angle or down a hallway, a digital display of the pressure value that is always-on or momentary an alarm delay for door entry, and POS or NEG room mode. The Setra Lite sensor has Setra's accuracy and reliability that you can trust.

Setra Lite is about the size of a standard light switch and just as simple to install. It fits in a single-gang US electrical box, international 86-box or international round back-box, and is powered by 24VAC or 24VDC. The reference side pressure pickup is integral with the Lite faceplate. An analog output provides the building management system with the pressure signal for any additional trending or alarming needed.

The Setra Lite also integrates seamlessly with the Setra Flex environmental monitor. Mount Setra Lite at additional doors that enter the space and use an on-screen badge to display its value.

## 1.1 Intended use

Setra Lite is designed to sense and visually indicate the pressurization status of critical environments, including cleanrooms and sensitive hospital areas (sterile bronchoscopy rooms, and other USP 800 compliant pressurized spaces). Setra Lite is design provide an intuitive visual indicator of the status of the room and can also be tied into other devices via analog output.

## 1.2 Display and LED light ring



Setra Lite features an LED light ring that will glow red if room pressurization violates the configured alarm threshold. The design of the light ring allows the room status to be visible from a distance, even from down a hallway. With a simple press of the front lens of the unit, the LCD displays the current differential pressure. Configuration of the unit can be performed on the device via buttons located behind the removable front lens. The unit can be put into and taken out of "Standby" mode by pressing the front lens 3 times in quick succession.

## 2.0 Rough-in installation

For Setra Lite to be installed correctly, the rough-in phase of the project must be completed properly. This section will outline the specific considerations the General Contractor must pay attention to so that the final wiring and commissioning will go smoothly.

### 2.1 Intended use

The following is a list of parts required and supplied by installer for Setra Lite:

1. Power (18-22 AWG recommended) and signal wire
2. 1/8 in. ID silicon tubing to run from the room(s) Pressure Pickup Ports to the Setra Lite monitor or external sensors.
3. 24 VAC or VDC transformer, capacity rated for number of Setra Lite units powered
4. Single-gang electrical box, if opting not to install directly into wall
5. Single-gang electrical box, one per Pressure Pickup Port, if opting not to install directly into wall

### 2.2 Parts included with your order

The following parts are included with your order:

1. Setra Lite main unit
2. Pressure Pickup Port (located in master shipping box)
3. Mounting hardware
4. Elbow connectors, if needed
5. 250 ohm resistor, if wiring inputs for 4-20 mA current loops

### 2.3 Unboxing the unit



When first opening the Setra Lite box, the faceplate and lens are in a protective bag on top. Set aside these parts for final installation.

Located underneath the faceplate and lens is the main sensor body of the Setra Lite.

Attachment hardware is located in the side slot of the packing foam inside the Setra Lite box.

A Pressure Pickup Port is separately packaged and included in the master shipping box that contained the Setra Lite.

## 3.0 Installation overview

Each Setra Lite unit comes complete per order specifications to provide room differential pressure sensing and an intuitive visual indicator of room pressurization status.

### 3.1 Prepare wall for mounting



1. Cut hole in wall for Setra Lite or install 1-gang electrical box
2. Install 1-gang electrical box for each Pressure Pickup Port (RPS), either horizontal ceiling mounted or vertically mounted high on a wall surface
3. Ensure electrical boxes are level and flush to the finished wall surface

### 3.2 Install Pressure Pickup Port (RPS)



1. Install room-side Pressure Pickup Port, which transmits pressure to be measured by Setra Lite.

**Note: Reference-side pressure pickup is integrated into the main body of Setra Lite - no additional Pressure Pickup Port is required for reference side.**

2. Run tubing to Setra Lite electrical box, being careful not to crimp tubing in conduit or within walls
3. Run all wiring to the Setra Lite electrical box.

### 3.3 Plumbing

Typically, a Pressure Pickup Port (RPS) is installed in the primary monitored room and Setra Lite is installed in the reference area (typically a hallway). Installing a single gang electrical box inside the room, typically high on the wall or flush-mounted to the ceiling is appropriate for the Pressure Pickup Port. 1/8" ID soft platinum-cured silicon tubing is typically used to bring the pressure signal from the Pressure Pickup Port to the pressure fitting on the back of Setra Lite.

**Note: Caution should be taken to locate the Pressure Pickup Port and Setra Lite at least six (6) feet from air turbulence that may originate from air supply diffusers, slot diffusers, mobile equipment cooling fans, or other devices that may exhaust air in the direction of the ports. Air velocity blowing directly on these ports can cause inaccurate pressure measurement.**

Attach pressure tubing as follows for final connections:

1. Install the supplies silicone tube (with integrated external spring) and attached barbed tube adapter on the rear face of the RPS unit onto the end of the 0.25" field tubing. This short length of tubing is used as a safety to prevent any kinking inside tight spaces. From here you would add your typical run of 1/8"ID x 1/4"OD tubing between the pressure pickup and the Setra Lite.
2. Push the open end of the 1/8" ID soft silicone tubing onto port on the rear of the Setra Lite.

### 3.3.1 Considerations to avoid kinked or damaged tubing

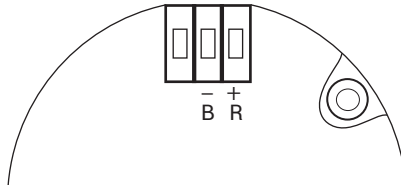
Pull tubing runs in a manner that protects the tubing from being damaged, cut, or crimped. Any break or bend in the tubing may affect the integrity of the pressure signal. DO NOT TIGHTEN STRAIN RELIEFS at the electrical boxes so that they crimp the tubing. Leave the strain reliefs open enough so that the tubing can slide in and out of the box with a few inches of play. Prior to use, tape the open ends of the tubes closed to prevent contamination during construction.

During final installation of the Pressure Pickup Port, careful observation should be made of how the tubing gets pushed back into the wall for final faceplate mounting.

### 3.4 Wiring Setra Lite

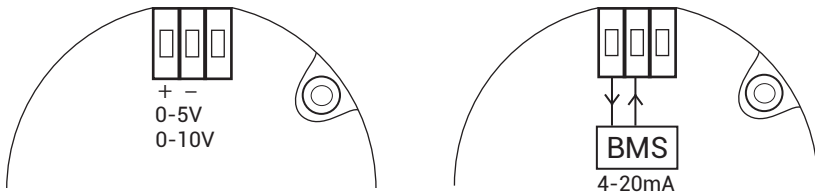
The back of Setra Lite has a 3-pin terminal block used to connect power and analog pressure output (if needed).

#### 3.4.1 Power



The power connection for Setra Lite uses the 2 pins on the right when looking at the rear of the unit. Connect the 24 VDC (+/- 10%) or 24 VAC (18-32 VDC operational), 50-60 Hz lines to the terminals marked above typically black (B) and red (R) wire.

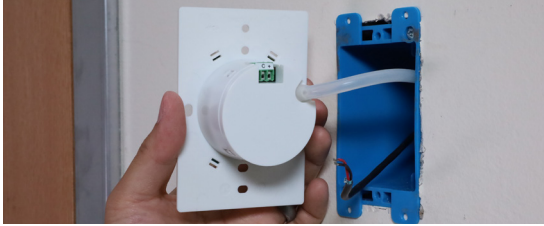
#### 3.4.2 Analog output



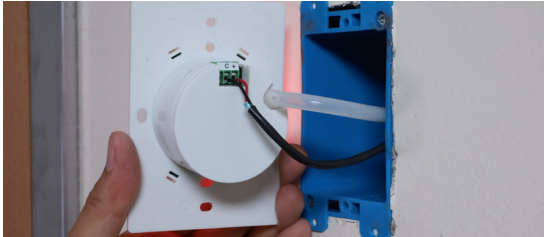
If using the Analog Output (AO) for voltage output, connect to the terminals as labeled on the top diagram. If using the AO for mA output, connect to the terminals shown in the diagram directly above. A 250 Ohm resistor is included for this output type in the event you need to convert to volts (1-5V). The AO generates a 0-5 VDC, 0-10 VDC, or 4-20 mA output signal, as configured.

### 3.5 Completing the installation

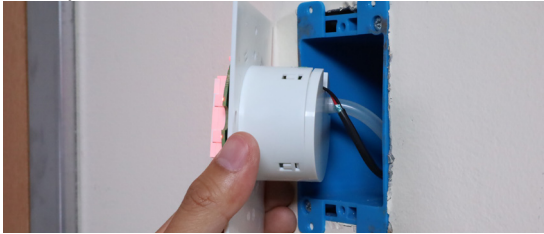
1. Connect pressure tubing from the Pressure Pickup Port to the port on the back of Setra Lite.



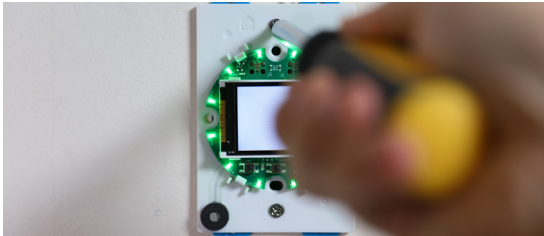
2. Connect wiring for power and analog output (if required)



3. As you push the Setra Lite unit into the electrical box, push the tubing into the conduit tube or into the wall cavity.



4. When wiring is complete, push Setra Lite into the enclosure and secure with two (2) mounting screws.

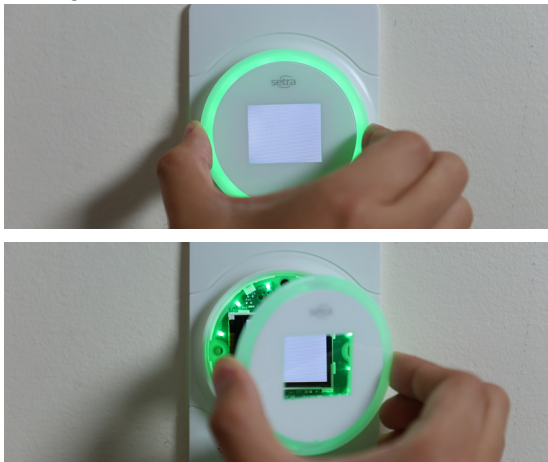


5. When the home screen appears, Setra Lite can be configured via 3 buttons located below the LCD display on the circuit board. Initial setup, zero, and configuration menu settings are detailed in the following section.

**Note: Setra Lite should be installed, powered and operational for 30 minutes for warmup and acclimation for one-time pressure sensing stabilization. If necessary, after the warmup, units can be re-zeroed. Setra Lite contains a small air valve to allow for one-touch zeroing via the configuration menu.**



6. After configuration is completed, align and engage the bottom snaps of the faceplate and then align and engage the top two snaps. Then, align and install the front lens to the faceplate by inserting top snap first, followed by the bottom snap. LEFT and right snaps are alignment only. When removing the cover lens, grasp lens left and right with forefinger and thumb and pull straight out as shown in the bottom.



## 4.0 Servicing Setra Lite

### 4.1 Configuration

Configuration of Setra Lite (including sensor zeroing) can be performed by removing the front lens from the unit and configuration setting via the 3 buttons located below the LCD display.

To remove the front lens, grab the front lens from the left and right side edges, and pull the lens away from the wall.



The configuration menu can be accessed by holding the LEFT button for 3 seconds. Configuration menu settings (including one-touch zeroing) are detailed in the following section.



## 4.2 Removal

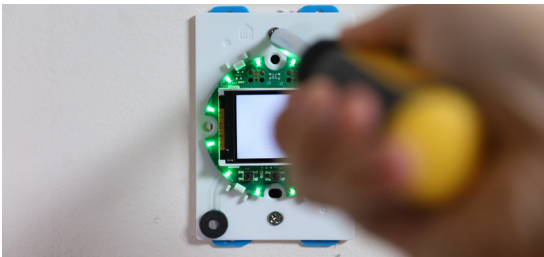
In the event Setra Lite needs to be removed for service or recalibration, first remove the front lens. To remove the front lens, grab the front lens from the left and right side edges, and pull the lens away from the wall.



Next, locate the 4 snaps holding the faceplate to the unit. Carefully push on the inside lip of the faceplate near each snap to disengage each snap one at a time.



Once the faceplate has been removed, unscrew the unit from the wall or electrical box, and disconnect wires and pressure tubing.



## 5.0 Operation

Once Setra Lite is installed and powered-up, configuration and operation can begin. Setra Lite can be easily configured via 3 buttons located below the LCD display after removing the front lens.

### 5.1 Removal

With the unit powered on, grab the lens by the left and right edge, then pull away from the unit.



Locate the 3 buttons located below the LCD display.



Press and hold the LEFT button for 3 seconds to access the configuration menu (the LED ring should shut off after the configuration menus are accessed).



Press the RIGHT button ("✓") to navigate to the next screen.

Press the LEFT button ("↶") to navigate to the previous screen and eventually exit the configuration menu. The unit will also automatically timeout and return to normal operation if no buttons are pressed for a set period of time.

To change a setting, navigate to the desired setting screen, and press and hold the RIGHT button ("✓"). The screen text should flash 3 times, indicating ability adjust the setting.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust the selected setting.

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

To exit configuration, press the LEFT button ("↶") to navigate to the previous screen and eventually exit the configuration menu. The unit will also automatically timeout and return to normal operation if no buttons are pressed for a set period of time.

## 5.2 Configuration menus

This section will describe the function of each of the configuration menus.

### 5.2.1 Zero



Press and hold the RIGHT button ("✓") to zero the onboard pressure sensor. The unit contains an onboard valve to automatically equalize the pressure differential across the sensor.



Zeroing is complete when the screen reads "ZERO DONE".

### 5.2.2 Alarm limits



Press and hold the RIGHT button ("✓") to adjust the alarm limits (i.e. pressure at which the LED ring will turn red); the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust.

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

### 5.2.3 Door delay



Press and hold the RIGHT button ("✓") to adjust the alarm door delay (i.e. number of seconds before the LED ring will turn red when pressure alarm limits are exceeded); the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between 000 and 999 seconds. If you hold the adjustment button, numbers will accelerate for convenience.

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

### 5.2.4 Room



Press and hold the RIGHT button ("✓") to adjust the room pressurization (i.e. whether the room is positively or negatively pressured); the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between positive ("POS"), negative ("NEG"), or neutral ("OFF").

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

### 5.2.5 Display



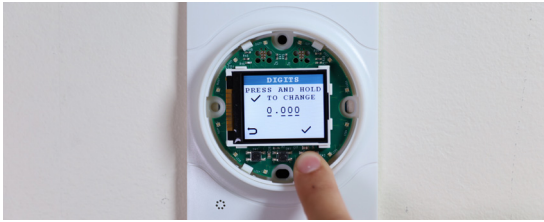
Press and hold the RIGHT button ("✓") to adjust display behavior (i.e. whether the LCD display shows the digital pressure reading by default); the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between showing a digital reading by default ("ON"), or showing a blank screen ("OFF").

**Note: When display is set to "OFF", the digital pressure reading is still viewable by pressing the front lens and then numbers will vanish after 3 seconds.**

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

## 5.2.6 Digits



Press and hold the RIGHT button ("✓") to adjust the number of decimal places displayed on the LCD screen; the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between 0 ("0.000"), tenths ("0.000"), hundredths ("0.000"), or thousandths ("0.000").

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

## 5.2.7 Rings



Press and hold the RIGHT button ("✓") to select between no ring light, alarm (red) ring light only or both green/red light ring indicators. The screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between always off, on only in alarm, or always on.

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

## 5.2.8 Outputs



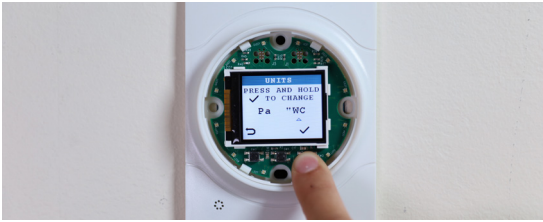
Press and hold the RIGHT button ("✓") to change the output type. The screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between 4-20mA, 0-5V, and 0-10V.

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.



## 5.2.9 Units



Press and hold the RIGHT button ("✓") to adjust the measuring units used for the digital display and alarm thresholds; the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between pascals ("Pa") and inches of water ("WC").

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

## 5.2.10 Light level



Press and hold the RIGHT button ("✓") to adjust the brightness of the LED light ring; the screen text will flash 3 times to indicate that the setting is ready to be adjusted.

Use the LEFT ("←") and MIDDLE ("→") buttons to adjust between 1 ("dimpest") and 5 ("brightest").

When finished, press the RIGHT button ("✓") to save the setting. The screen text should flash 3 times to indicate return to the main configuration selection screens.

## 5.3 Operation

Once installed, powered up, and configured, Setra Lite will operate as configured.

### 5.3.1 LED light ring

Under normal operation with pressure within the configured alarm limits, the LED light ring will glow green.



If pressure exceeds alarm limit thresholds, the LED light ring will glow red.



Alarm limits can be configured via the ALARM LIMITS menu. LED light ring behavior can be configured via the RING menu.

### 5.3.2 View pressure reading

If the DISPLAY is set to "OFF", the LCD display will be blank under normal operation. To see a digital pressure reading, simply press on the lens of Setra Lite.



### 5.3.3 Standby mode

For temporary instances where the Red/Green LED light ring status is not needed (e.g. room is opened for extended cleaning), Setra Lite can be placed into STANDBY mode by pressing the lens 3 times in a quick succession. The LED light ring glows yellow in STANDBY mode. This mode is used when the room will be open longer than the "door delay" feature allows. The maximum door delay is usually set by facility personnel to avoid false alarms caused by intermittent door openings. The maximum door delay can be set for up to 999 seconds.



To bring the unit out of STANDBY mode and back into normal operation, press the lens 3 times in quick succession.



## 6.0 Returning products for repair

Please contact a Setra application engineer (800-257-3872, 978-263-1400) before returning unit for repair to review information relative to your application. Many times only minor field adjustments may be necessary. When returning a product to Setra, the material should be carefully packaged and shipped prepaid to:

Setra Systems, Inc.  
159 Swanson Road  
Boxborough, MA 01719-1304  
Attn: Repair Department

To ensure prompt handling, please supply the following information and include it inside the package or returned material:

- Name and phone number of person to contact.
- Shipping and billing instructions.
- Full description of the malfunctions.
- Identify any hazardous material used with the product.

### NOTES:

Please remove any pressure fittings and plumbing that you have installed and enclose any required mating electrical connectors and wiring diagrams.

Allow approximately 3 weeks after receipt at Setra for the repair and return of the unit. Non-warranty repairs will not be made without customer approval and a purchase order to cover repair chargers.

### Calibration Services

Setra maintains a complete calibrations facility that is traceable to the National Institute of Standards and Technology (NIST). If you would like to recalibrate or recertify your Setra pressure transducers or transmitters, please call our Repair Department at 800-257-3872 (978-263-1400) for scheduling.

## 7.0 Limited warranty & limitation of repair

SETRA warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions: Without charge, SETRA will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

- a) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of instructions furnished by SETRA;
- b) the product has not been repaired or altered by anyone except SETRA or its authorized service agencies;
- c) the serial number or date code has not been removed, defaced, or otherwise changed; and
- d) examination discloses, in the judgment of SETRA, the defect in materials or workmanship developed under normal installation, use and service;
- e) SETRA is notified in advance of and the product is returned to SETRA transportation prepaid.

Unless otherwise specified in a manual or warranty card, or agreed to in a writing signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of sale.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability for a particular purpose.

SETRA's liability for breach of warranty is limited to repair or replacement, or if the goods cannot be repaired or replaced, to a refund of the purchase price.

SETRA's liability for all other breaches is limited to a refund of the purchase price. In no instance shall SETRA be liable for incidental or consequential damages arising from a breach of warranty, or from the use or installation of its products.

No representative or person is authorized to give any warranty other than as set out above or to assume for SETRA any other liability in connection with the sale of its products.

For all CE technical questions, contact Setra Systems, USA. EU customers may contact our EU representative Hengstler GmbH, Uhländstr 49, 78554 Aldingen, Germany (Tel: +49-7424-890; Fax: +49-7424-89500).



**Setra Systems, Inc.**

159 Swanson Road, Boxborough, MA 01719  
800.257.3872 • [www.setra.com](http://www.setra.com)