

1. Differential Room Pressure is to be monitored by a Setra Systems, Inc. – Setra Lite (Device), with functions that shall include an integral pressure sensor and LED light ring with visual red, green, and yellow alarming. The option shall be available for audible alarming.
  
2. Software Monitoring Operation:
  - a) The Device shall be capable of monitoring the differential pressure between adjacent individual spaces at all specified locations on the drawings.
  - b) The faceplate shall have an LED light ring capable of being viewed 180 degrees to visually observe color changes that indicate room pressure alarms. These colors shall be red (for alarm), green (for normal), or yellow (for standby).
  - c) While in end-user operating mode, the display will show:
    - a. A digital readout of differential pressure to four digits in either inches of water column or Pascal units.
    - b. Room intended pressure as “POS” for positive, “NEG” for negative, or no indication if neutral.
    - c. Units of operation as either “WC for inches of water column or “Pa” for Pascals.
  - d) While in configuration mode, the display shall be capable of adjusting:
    - a. Sensor re-zero, using automatic valve shunt-and-tare
    - b. Audible alarming ON or OFF
    - c. Alarm thresholds, both POS and NEG
    - d. Alarm delay, for door-open access by staff
    - e. Room POS or NEG indication
    - f. Pressure value display ON or OFF
    - g. Number of digits shown
    - h. Light ring performance options
    - i. Light ring brightness level
    - j. Output signal, voltage or milliamp
    - k. Sensor units of measure indication, “WC or Pa
  - e) The display light ring itself shall function as a button, where pressing the bottom half will activate features such as showing the pressure value or acknowledging an audible alarm.
  
3. Mechanical and Electrical Operation:
  - a) The Device shall utilize a direct pressure sensing device for differential pressure measurement; flow-through technologies (i.e. hot wire anemometers) that require frequent cleaning are not acceptable. The Device will have an internal pressure sensor. Each Device must be provided with a NIST-traceable calibration certificate for the differential pressure sensing element.
  - b) The on-board pressure sensor shall be capacitive-based transducer, with bi-directional ranges from  $\pm 0.25''$  WC ( $\pm 62$  Pa) to  $\pm 1.0''$  WC ( $\pm 250$  Pa), or uni-directional range 0 to 3''

WC (750 Pa). Performance characteristics of the sensor shall be Accuracy RSS  $\pm 0.5\%$  of full-scale.

- c) The differential pressure sensor shall be dead-ended in design, requiring no air to flow through tubing, and where tubes and the sensing element require no cleaning for continuous reliable operation.
- d) An option shall be available to readily wire and duplicate the red, green, or yellow status of the ring on the opposite site side of the wall (known commercially as Dual Alert).
- e) The Dual Alert option shall have a single plate that integrates both pressure sensing pickup and the visual red, green, or yellow status of the ring.
- f) The device shall fit in a standard electrical gang-box, US design as single-gang box and China design of 86-box. Suitable boxes of minimal dimensions in other parts of the world shall be suitable.
- g) The orientation of the device shall be either portrait (vertical display) or landscape (horizontal display).
- h) The faceplate shall have an integral reference-side pressure pickup port that is connected pneumatically to the on-board sensor.
- i) An available option shall be an orderable part that permits the device to be mounted with either controlled-room-side reference port or hallway-side reference port.
- j) The light ring lens shall be modular and removable, and designed such that custom labels may be applied.
- k) Configuration shall be initiated and performed using only three on-board buttons and software key indication on the display
- l) The Device shall have 1 analog output.
- m) Each Device shall have ability to send an analog output of 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC to a system controller.
- n) Each Device shall have 65k color display with 128x160 resolution.
- o) Each Device shall be flush mount design and installed in a standard off-the-shelf electrical wall box with no visible external fasteners; visible screw heads are not acceptable. Stand-off from the wall surface shall not exceed 16.8 mm.
- p) Power shall be either 24 volts AC or DC, compliant with full operation in the range of 18-32 volts.
- q) Ingress Protection (IP) rating shall be IP-54.
- r) The Device depth within the wall cavity shall not exceed 37 mm.
- s) The Device shall have an optional quick-mount assembly that requires no wall modifications for installation or operation.
- t) The Device shall be available in white.

#### 4. Acceptable Manufacturers:

- a) The functions of room monitoring and alarming shall be Setra Lite as manufactured by Setra Systems, Inc., Boxborough, MA. Telephone (978) 263-1400 Fax (978) 264-0292 Web Site [www.setra.com](http://www.setra.com)