setra FLEX

Environmental Monitor

- Supports 3 Rooms, 6 Parameters Each
- 7" Projected Capacitive Touch Screen
- BACnet/IP & BACnet MS/TP
- Flush Mount to Wall
- Mounts in Standard Electrical Boxes
- Full Touch Response with Medical Gloves
- No Programing Required
- 4 Inputs & 2 Outputs On-board
- 8 Inputs & 8 Outputs Expansion I/O Module
- On-board or External Pressure Transducer
- High Accuracy 0.25% Sensor Standard
- Monitor and Control Pressure, Temperature, Humidity, Air Change Rate and 2 User Defined Parameters
- 4 Customizable Room Profiles
- 2 Levels of Password Security
- User-defined On-screen Text and Icons
- Configuration Options Help Reduce Nuisance Alarms
- 50mm Wall Depth when Sensor is Mounted Remotely
- Cloning Features Reduces Time Required for Multi-Unit Installation
- Remote duplicate display shows parameters inside and outside of rooms

The Setra FLEX™ provides a flexible room environmental control and monitoring solution in a simple-to-use package. An attractive flush-mount faceplate is complemented by an intuitive graphical display to meet any architectural requirement. The unit supports 3 rooms, monitoring up to 6 parameters for each room. If additional I/O is required, an expansion I/O module enables the monitoring and control for more complicated applications.   An optional differential pressure sensor can be either factory-installed in the unit or ordered separately and installed above the ceiling. Integration with building automation systems is made easy through either BACnet/IP or BACnet MS/TP network protocols.

Modular Design

A modular hardware design enables the FLEX monitor to fit in various wall thickness found around the globe. For applications which require the monitor to fit in wall depths less than 50mm, the FLEX can be ordered with an external pressure sensor. When mounting in a three gang electrical box, the FLEX can be ordered with an integrated on-board sensor. Sufficient on-board I/O provides connectivity for most common equipment and sensor applications. If additional connections are required, or if more advanced HVAC applications demand it, the expansion I/O module can be ordered as an accessory. A high accuracy 0.25% differential pressure transducer is used in all pressure sensing options. A projected capacitive touch screen provides swipe functionality and allows for use with medical gloves. The faceplate is attached to the unit body, enabling both tamper resistant operation and easy opening for pressure calibration.

Setra FLEX-RM and FLEX-RC

FLEX software is designed to suit any application, with the ability to support up to 3 rooms. FLEX-RM (Room Monitor) provides monitoring only, for those applications where no control from the touch screen is needed. FLEX-RC (Room Control) offers monitoring, plus PI loop or network control of VAV boxes, venturi valves, or hydronic reheat valves. Software is pre-installed, with configuration and network integration done using simple setup screens. There is no programming required. When completed, configuration settings on one unit can be cloned to other devices using a standard USB thumb drive, thereby shortening commissioning time. Units can also be configured remotely over a BACnet network.

The FLEX monitor is both a controller and monitor, with audible and visual alarming on all room environmental parameters. The FLEX monitor enables users to save energy by choosing from two PI control loops and two monitoring sets for any of four room modes, such as occupied and unoccupied.

Specifications

Physical Description

Dimensions	9.25" W x 6.3" H x 0.65"D (215.0mm x 160.0mm x 16.51mm)
Mounting	Triple-gang, double deep electrical box. RACO 697, Appleton M3-350, or equivalent
Case	Fire-retardant plastic UL94 V-0
Weight	2 lbs
Display	7" Projected Capacitive (PCAP) multitouch. 800 x 480 pixels. Usable with medical gloves.
Display brightness	1-7
USB port	Micro-USB port for configuration cloning between units and software upgrades.
Audible alarm	Dual piezo with 3 volume levels (0-75 dB max.)

Communications

Protocols (BACnet objects can be found at setra.com)

BACnet/IP using IPv4, Ethernet CAT5 cables with RJ45

BACnet MS/TP up to 76.8 kbps, 3-conductor, twisted, shielded 16-24 AWG cable

Electrical

Power	24 VAC (18-32 VAC operational), 50-60 HZ
Power draw	13 W max, 10 W typical
Wire	2 or 3-conductor (depending on application) stranded unshielded twisted pair, 16-24 AWG
Connections	Removable Terminal Blocks

Regulatory Compliance

CE, RoHS, WEEE

Environmental Data

Operating temp. °F (°C)	32 to 120 (0 to 50)
Storage temp. °F (°C)	-40 to 185 (-40 to 85)
Operating humidity	5 to 95% RH (non-condensing)
Ingress Protection (IP) rating	IP54

Chemical Resistance

Exposed surfaces are chemically resistant to vaporized hydrogen peroxide (VHP), formaldehyde, chlorine dioxide (clidox), perchloric acid, sodium hypochlorite 3-6% (bleach), quaternary ammonium 7% in 1:128 tap water (ammonia).

Performance

Accuracy RSS	±0.25%
Non-linearity (BFSL)	±0.24%
Hysteresis	±0.05%
Non-repeatability	±0.05%
Span setting tol.	±0.5% Rdg
Zero/span shift % FS	± 0.03% PSI (±0.05% FS)
Overpressure	±1 PSI (15" WC for ≤0.10" WC FS)
Pressure media	Air or non-conductive, non-explosive gases
Pressure fittings	3/16" barbed fittings
Altitude	6562 ft. (2000 m) max.
Position	Housing to be 90° in reference to level surface, ±5°

Specifications subject to change without notice.

Software features

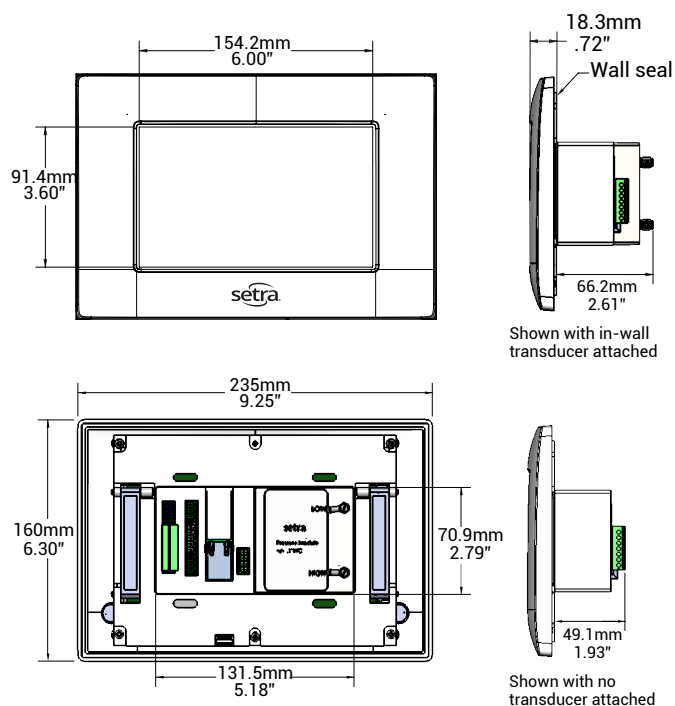## Home Screen

Rooms supported (3)	Carousel display to show up to 3 rooms, with monitor and control for each.
Parameters per room (6)	Badges display pressure, temperature, humidity, air change rate, and 2 user-defined parameters. Each capable of monitor or control. All information available over BACnet.
Room profiles (4)	Define profiles for room environmental control and monitoring. User-defined text. Used for modes such as occupied, unoccupied, cleaning, or decontamination.
Pressure modes (3)	Positive, Negative, Neutral
Background colors (5)	Green, yellow, blue, red, orange for room condition.
Text (2)	User defined lines text that describe room condition.
Icons (1)	Choose from a palate of icons to represent room condition.
Control	Four control loops assignable per device. PI control loop for on-board and external analog outputs. User-defined set point limits. All information available over BACnet.

Alarming

Parameters per room (6)	Visual and audible alarms for pressure, temperature, humidity, air change rate, and 2 user-defined parameters.
Visual	Green = normal, Red = alarm, Yellow = warning
Audible	Dual buzzers with 3 volume levels (0-75 dB max.)
Disable	One-touch all alarms disable function.
Silence	Selectable 0 - ∞ seconds
Delay	Selectable 0 - 9999 seconds
Latch	Alarm option to hold alarm state until manually reset by operator.
Remote	Remote annunciation to dedicated unit (p/n SRAN) or to multi-unit room monitor.

Dimensions

154.2mm
6.00"

91.4mm
3.60"

setra

18.3mm
.72"

Wall seal

66.2mm
2.61"

Shown with in-wall transducer attached

235mm
9.25"

160mm
6.30"

131.5mm
5.18"

70.9mm
2.79"

49.1mm
1.93"

Shown with no transducer attached

Ordering information

Example part number: FLEX0R1WBRM7S4

Setra Flex, ±0.10" W.C., Room monitor only, 7 inch display, Setra logo on faceplate, 4 pressure snubbers:.

F	L	E	X	□	□	□	□	□	□	7	S	□
	[1]				[2]				[3]	[4]	[5]	[6]

[1]	
Model	
FLEX	Setra FLEX™

[2]	
Pressure transducer range for on-board sensor	
R05WB	±0.05" WC
0R1WB	±0.10" WC
R25WB	±0.25" WC
0R5WB	±0.50" WC
001WB	±1.00" WC
Z02LB	±12.5 Pa
025LB	±25 Pa
050LB	±50 Pa
100LB	±100 Pa
250LB	±250 Pa
NNNNN	No Transducer

[3]	
Monitor or controller	
RM	Monitor Only, No Control Operation
RC	Control and Monitoring, Full Control Operation

[1]Stainless steel pressure pickup port, 2.75" x 4.5", mounts in standard single-gang wall box. Typically 2 are required for each room.

[4]	
Display	
7	7" screen

[5]	
Faceplate	
S	Setra Logo

[6]	
Pressure snubber[1]	
N	Quantity 0
1	Quantity 1
2	Quantity 2
3	Quantity 3
4	Quantity 4
5	Quantity 5
6	Quantity 6

Model 264 Pressure Transducer

Example part number: 2641R25WB11A1F

Model 264, ±0.25" WC bidirectional pressure range, 4-20 mA output, 1/2 in. conduit enclosure, ±0.25% FS accuracy:

2	6	4	1	□	□	□	□	□	□	A	1	F
[1]				[2]				[3]		[4]		[5]

[1]	
Model	
2641	Model 264

[2]	
Pressure range (bidirectional)	
R05WB	±0.05" WC
0R1WB	±0.1" WC
R25WB	±0.25" WC
0R5WB	±0.5" WC
001WB	±1" WC

[3]	
Output	
11	4-20 mA
2D	0-5 VDC

[4]	
Electrical Termination	
A1	1/2 in. conduit enclosure

[5]	
Accuracy	
F	±0.25% FS

Model 267 Pressure Transducer

Example part number: 2671R25WB11A1FD

Model 264, ±0.25" WC bidirectional pressure range, 4-20 mA output, 1/2 in. conduit enclosure, ±0.25% FS accuracy with LCD display:

2	6	7	1	□	□	□	□	□	□	A	1	□	□
[1]				[2]				[3]		[4]		[5]	

[1]	
Model	
2671	Model 267

[2]	
Pressure range (bidirectional)	
R05WB	±0.05" WC
0R1WB	±0.1" WC
R25WB	±0.25" WC
0R5WB	±0.5" WC
001WB	±1" WC

[3]	
Output	
11	4-20 mA
2D	0-5 VDC
2E	0-10 VDC

[4]	
Electrical Termination	
A1	1/2 in. Conduit Enclosure

[5]	
Accuracy	
FN	±0.25% FS, no LCD display
FD	±0.25% FS, w/ LCD display

Inputs & Outputs

Universal inputs (3)	0-5 VDC, 0-10 VDC, or 4-20 mA input signal* Configurable for either Analog or Digital signals. Use external sensors for pressure, temperature, humidity, or any suitable application. Use as digital input for door, HVAC filter DP, or duct static DP pressure switch.
Analog input (1)	Dedicated for use as input for either on-board pressure transducer, or general AI input. Used only when no transducer is purchased on unit.
Analog output (1)	0-5 VDC, 0-10 VDC, or 4-20 mA output signal. Use as PI control loop to modulate reheat valves or other analog driven devices, pressure output signal, or mirror an input signal. Can be assigned to any room parameter.
Relay output (1)	15 VDC SPDT NO/NC Relay. Use as remote alarm annunciator or other NO/NC applications. Contact rating 2.0A @ 30 VDC /VA 0.6A @125 VAC
Wire	Stranded shielded twisted pair, 16-24 AWG .14-1.5 mm² cross sectional area
Expansion I/O module	8 Universal Inputs, 4 Analog Outputs, 4 Relay Outputs

*Installer provided 250Ω resistor required for 4-20mA signal

AO
VDC
MA
COM

PWR
⏚
L2
L1

AI*
+24V
COM
AI

UI
+24V
UI1
COM
+24V
UI2
COM
UI3
COM

RELAY
COM
+24V
NO
RC
NC

BACnet MS/TP
B+
A-
GND

SERIAL (PROPRIETARY)
B
A
Z
Y
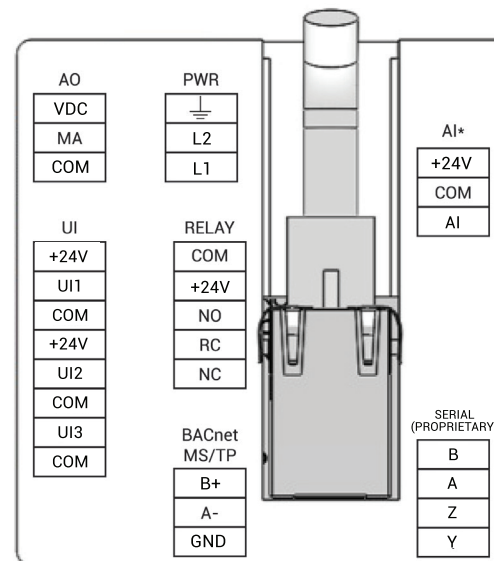
*AI for on-board transducer or general AI input.

Expansion I/O Module

The FLEX Expansion I/O Module adds an additional eight inputs and eight outputs to the FLEX monitor. This I/O module can be used for additional hard-wired sensors, expanding monitoring and control applications. Eight universal inputs can be configured as either analog inputs or digital inputs. Four analog outputs provide external signaling and data values to third party equipment and controllers. Four relay outputs enable equipment control for reheat coils, VAV damper actuators, and similar devices. A 24 VDC output can be used with other peripheral devices such as Setra's SRAN remote annunciator. Communications to the FLEX monitor is via a proprietary serial bus.

Model: FLEX-IO-16
Rating: 1832 V ~ :50/60Hz: 8 VA max
S/N: 1234567890
Setra Systems, Inc., Boxborough, MA

Inputs & Outputs

|	
Universal inputs (8)	0-5 VDC, 0-10 VDC, or 4-20 mA input signal* Configurable for either Analog or Digital signals. Use external sensors for pressure, temperature, humidity, or any suitable application. Use as digital input for door, HVAC filter DP, or duct static DP pressure switch.
Analog outputs (4)	0-5 VDC, 0-10 VDC, or 4-20 mA output signal. Use as PI control loop to modulate reheat valves or other analog driven devices, pressure output signal, or mirror an input signal. **Outputs #1-2:** 0-5 VDC, 0-10 VDC, or 4-20mA output signal **Outputs #3-4:** 0-5 VDC or 0-10 VDC only
Relay outputs (4)	SPDT NO/NC Relay. Use as remote alarm annunciator or other NO/NC applications. Contact rating 2.0A @ 30 VDC / VA 0.6A @125 VAC **Outputs #5-8:** 3-terminal, NC-COM-NO
Wire	Stranded shielded twisted pair, 16-24 AWG .14-1.5 mm² cross sectional area

*Installer-provided 250 ohm resistor required for use of 4-20 mA signal.

ANALOG OUTPUT — POWER OUTPUT — INPUT 1-5 — INPUT 6-8

MA1 VDC1 COM1 MA2 VDC2 COM2 VDC3 COM3 VDC4 COM4 | +24V COM | IN1 COM1 IN2 COM2 IN3 COM3 IN4 COM4 IN5 COM5 | IN6 COM6 IN7 COM7 IN8 COM8 | FUTURE USE

L1 L2 | +24V COM | NC1 RC1 NO1 NC2 RC2 NO2 NC3 RC3 NO3 NC4 RC4 NO4 | 1 2 3 4

POWER INPUT | POWER OUTPUT | RELAY 1-4 NO-COM-NC | SERIAL BUS TO DISPLAY MODULE

Ordering Information

F L E X E M 1 6

[1] — [2]

[1]	
Model	
FLEX	Setra FLEX

[2]	
Model	
EM16	Include expansion I/O module with order

Hardware specifications

Physical description

Dimensions	6.36" W x 3.53"h x 2.40"D (161.6mm x 89.7mm x 60.75mm)
Mounting	Base mount or 35mm DIN rail
Case	Polycarbonate
Weight	1lb

Environmental data

Operating temp.⁴ °F (°C)	32 to 120 (0 to 50)
Storage temp. °F (°C)	-40 to 185 (-40 to 85)
Operating humidity	5 to 95% RH (non-condensing)
Ingress Protection (IP) rating	IP 20
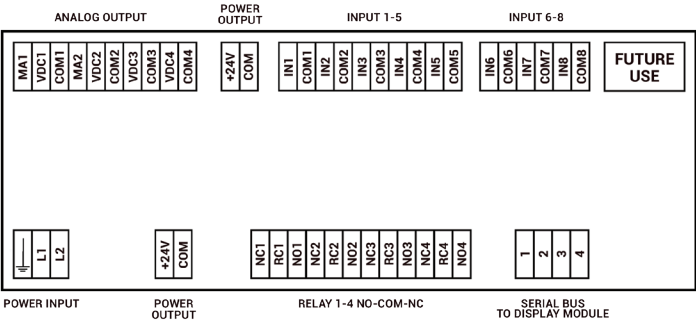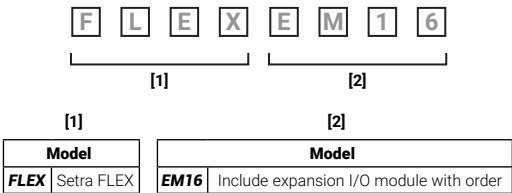
Communications

RS-485 isolated full duplex. Dedicated I/O expansion module to the FLEX touch monitor product family. I/O points are accessible on BACnet/IP or BACnet MS/TP through the FLEX monitor.

Electrical data

Power input	24 VAC (18-32 VAC operational), 50-60 HZ
Power output	Auxilliary power for external sensors. 24 VDC, 0.4A
Power draw	13 W maximum depending on load
Wire	2 or 3-conductor stranded unshielded twisted pair, 16-22 AWG
Connections	Removable terminal blocks

Regulatory compliance

CE, RoHS, WEEE