

IAQ ENFORCER™ Installation Guide

IMPORTANT: READ THIS GUIDE PRIOR TO INSTALLING SATELLITE STATIONS. IMPORTANT WIRE SIZING INFORMATION AND MAXIMUM DISTANCES BETWEEN SATELLITE STATIONS AND THE SYSTEM PROCESSING CENTER ARE IN THIS DOCUMENT.

1. LOCATION SELECTION

1.1 - The IAQ Enforcer system is a combination of a single System Processing Center [SPC] and one or more remote satellite sensing stations. Each satellite sensing station has a designated location which is identified in *Factory Assigned Settings* chart found in the pocket located inside the cover of the SPC panel.

1.2 - Satellite stations can be “daisy chained” with a single, 3 conductor cable (shielding not required). To determine the location of the the SPC, the maximum wire distances for each “daisy chain” must be determined. If the preferred location for the SPC is within the maximum wire distance, the panel can be mounted in the chosen location. If the preferred location of the SPC is not within the maximum wire distance, another panel location must be selected, a larger wire gage must be chosen, or the satellites must be wired individually or on a smaller “chain”. The four terminal blocks labeled Ports A, B, C, and D, are provided to simplify wiring connections. Satellites can be wired to any port location in the SPC panel.

1.3 - If the total wire distance for each port from the SPC to the last satellite station is 16 feet or less with 18 gauge wire, skip to section 2.

1.4 - To determine the maximum distance for any chain, determine the number of electronics panels and the total number of sensors for all of the panels you wish to run on a single “chain”. The maximum distance is based on the total number of satellite station electronics panels and the total number of sensors on a given “daisy chain”. Use table 1.1 (next page) to determine the maximum wire length of 18 gauge, 3 conductor wire, by locating the intersection of the column from the number of electronics panels (the top row of table 1.1) with the row of the total number of sensors (the first column of table 1.1).

Example: You wish to run 4 electronics panels with a total of 8 sensors on a single 3 conductor wire. By using table 1.1 data, you determine that you can run up to 90 feet of 18 gauge wire from the panel to the satellite stations. You wish to locate the SPC panel a total of 60 feet (actual wire run) from the last satellite station on the chain. Your location for the panel is acceptable for a single “chain”. Check the remaining “daisy chain” runs, if applicable.

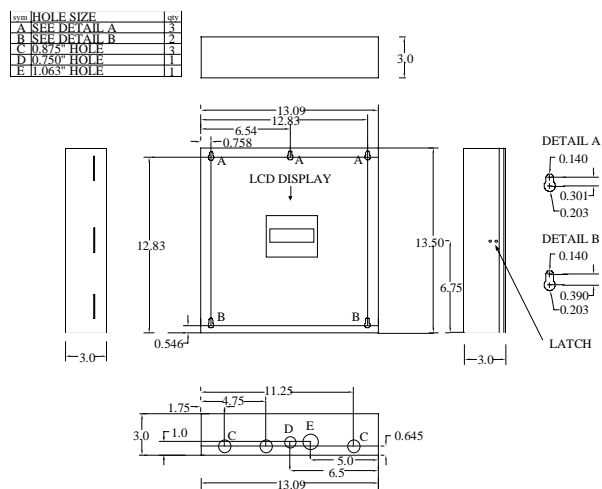
1.5 - Contact **EBTRON** for other gauge wire charts if required or for further assistance at 1-800-232-8766.

2. PHYSICAL INSTALLATION

2.1 - **The SPC is intended for indoor mounting only.** Locate the panel in a secure, dry environment.

2.2 - Once a location is selected, mounting of the SPC is very simple. The panel is hung at five mounting points, inside the panel, as illustrated in figure 2.1. **Do not drill any additional**

Figure 2.1 - Physical Dimensions



holes in the panel since metal shavings could damage the electronics and VOID factory warranty.

3. ELECTRICAL CONNECTIONS

3.1 - Refer to the *Factory Assigned Settings* chart to determine the location of the satellite stations. Each flow station is clearly tagged with the unit serial number. The SPC diagnostic will check that the satellite stations are wired as indicated on the chart, therefore, **proper wiring is essential for system operation.**

3.2 - Multiple satellite stations can be wired on a single, “daisy chained”, 3 conductor cable (shielding not required). “Daisy chaining” is not required but generally simplifies wiring. If “daisy chaining” is not used, the total wire length of each run must not exceed that calculated in section 2.

3.3 - Follow the wiring diagram (figure 3.1) for making the connections from the satellites to the IAQ SPC panel. **POWER MUST BE OFF TO THE IAQ ENFORCER SPC PANEL.** The power may be switched off at the main power switch located on the IAQ Enforcer panel electronics, just below the terminal blocks. All wiring inside of the IAQ Enforcer Panel should be routed neatly inside the provided wire way trough.

3.4 - Follow the appropriate instructions for the satellite stations to be installed (packed individually with each station).

3.5 - Output signals are sourced from the analog output cards located on the right side of the SPC panel. Refer to the *Factory Assigned Settings* chart to determine the source and output signal of each card. **WITH THE POWER TO THE SPC PANEL OFF, remove one card at a time to connect the signal wires and place it back in the same slot. THE ANALOG OUTPUT CARDS MUST BE PLACED BACK IN THEIR**

ORIGINAL SLOTS ON THE PANEL. Please note that the 4-20 mA option is a "4-wire" system which uses the SPC's own power to drive the signal. Do not connect to a "2-wire" input on the host controller.

3.6 - Provide 24V AC to the IAQ ENFORCER SPC Panel. If a 55 VA or larger power supply has been selected skip to 3.8 otherwise follow step 3.7.

3.7 - To determine the minimum transformer required, use the row labeled "Total Power" in the *Factory Assigned Settings* chart or use table 3.1 to determine the minimum power supply by locating the intersection of the column from the number of electronics panels (the top row of table 3.1) with the row of the total number of sensors (the first column of table 3.1). The minimum power is based on the total number of satellite station electronics panels and the total number of sensors for the entire system .

Example: The system has a total of 12 electronics panels and 36 total sensors. By using table 3.1 data, you determine that you need a 42 VA transformer .

3.8 - SINCE THE SPC PANEL USES A FLOATING GROUND DESIGN, THE 24V POWER SUPPLY CAN NOT BE EARTH GROUNDED. DOING SO WILL RESULT IN DAMAGE TO THE UNIT AND SYSTEM.

3.9 - After all of the connections have been made and confirmed, the power may be switched on to the SPC Panel and the green LED marked LED1 located on the left side of the printed circuit board should blink. The panel will then emit a "beep" and then display the SPC Panel start up screen (on models with an LCD display). The SPC Panel will begin to display and output the measurements from the satellite sensors. To diagnose errors or change **EBTRON** factory presets, consult the IAQ ENFORCER SPC system guide.

Figure 3.1

IAQ ENFORCER SYSTEM WIRING DIAGRAM

