

SPECTREX



CORPORATION

OPERATING MANUAL

SXC-20 VOC MONITOR

SPECTREX

CORPORATION

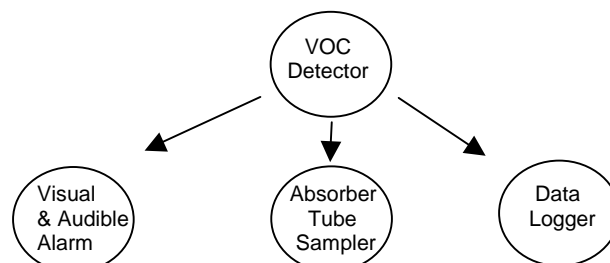
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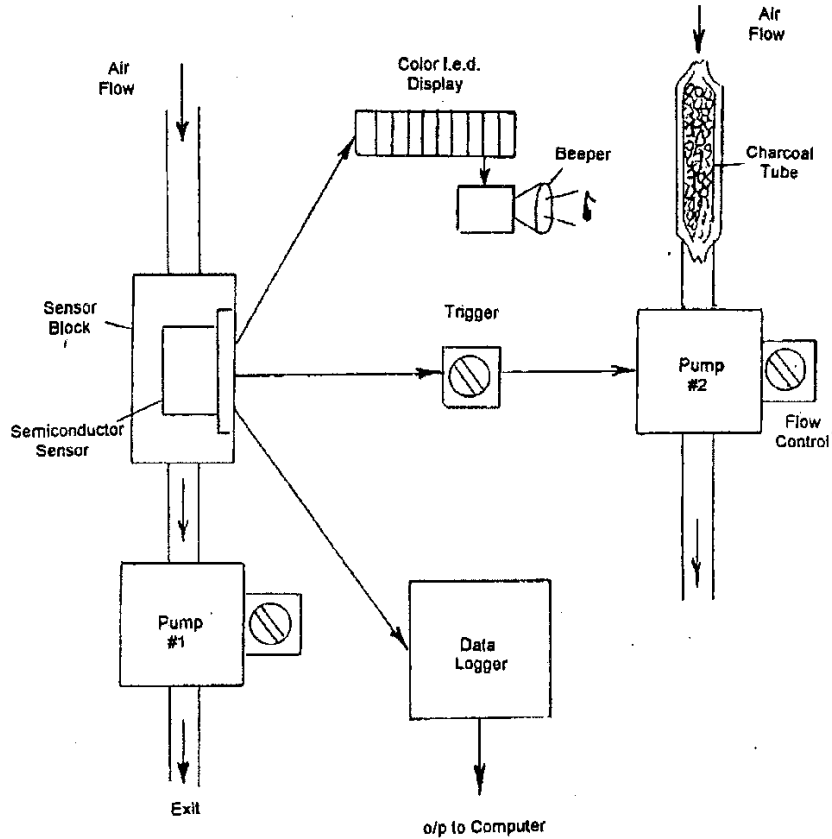
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The SXC-20 consists of four parts, each performing a unique function.

1. **V.O.C. Detector:** When the unit is turned on with the toggle switch on the top of the main case, Pump #1 is turned on. This pulls inlet air across the surface of a semi conductor gas detector. The presence of a V.O.C. will quantitatively change its electrical resistance and transmit a voltage signal to the three following separate receptors a, b and c.
2. **Visual and Audible Alarm:** An L.E.D. array, with colors ranging from green to amber to red shines through a transparent window in the center of the front cover and indicates quantitatively approximate levels of gases present. An audible “beeper” will also sound an alarm at a pre-selected level.
3. **Quantitative Tube Sampler:** The voltage from the V.O.C. Detector (item #1 above) will automatically turn on a second pump (Pump #2) which begins sampling, through an absorber tube. This can be a charcoal, colorimetric, or any other absorption tube. At the end of the sampling period, this tube can be quantitatively analyzed on a Gas Chromatograph. The sampling time is recorded by the Data Logger.
4. **Data Logger Record:** The built-in data logger continuously monitors the level of V.O.C. in the inlet sample, recording the level against the sampling time. The built-in clock monitors and records this sampling time. The time-trend data can be later transferred into a Personal Computer for convenience and ease of data retrieval.

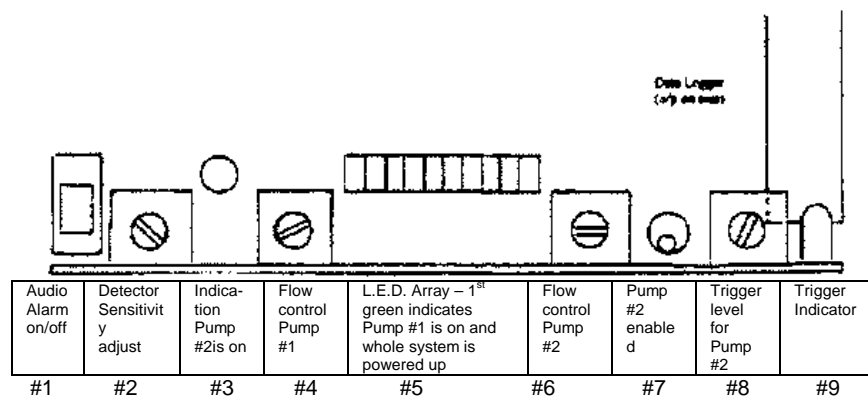


AIR FLOW DATA CONTROL DIAGRAM



Identification of Controls **A.**

Before setting the controls on the unit, it is important to understand where these controls are and what function they perform. First, unscrew the cover screws and then remove the front cover. The controls are mounted along the leading edge of the main control board.



Control

Control #1. Alarm Beeper On/Off

This switch permits you to activate/deactivate the audible alarm when the level of V.O.C.s reaches a preset level.

The instrument has the alarm level set at the first red L.E.D. of the diode array. You can change this by sliding the control board out of its mounting slot and soldering the jumper wire centrally located to another position.

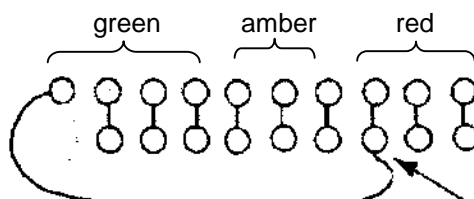


Figure 3

Control #2. Detector Sensitivity Adjust

This potentiometer determines the sensitivity of the V.O.C. Detector. It should be set by calibrating the unit with a gas standard. For instance, if a 100 ppm gas standard is used, the potentiometer might be used to set the L.E.D. array so that 100 ppm of the gas will illuminate the first red L.E.D.

Control #3. L.E.D. Indicates that Sample Pump #2 is on

This L.E.D. is visible through a window in the front cover to determine the status of adsorber tube sampling without removing the cover.

Control #4. Flow Control – Pump #1

This potentiometer determines the flow of incoming air (through the left-hand inlet port) which Pump #1 pulls across the semiconductor sensor. To set the flow, use a Spectrex BFM-10 or BFM-500 Bubble Flow Meter. The flow range of Pump #1 is 40-200 cc/minute. 100 cc/min is a good starting point.

Control #5. L.E.D. Array

The first green light indicates that Pump #1 is on. The greater the number of illuminated L.E.D.s, the greater the amount of V.O.C.s present in the incoming air sample. When the first red L.E.D. is illuminated, the audible beeper is activated.

Control #6. Flow Control –Pump #2

This potentiometer determines the flow of the air which Pump #2 pulls through the adsorber tube fitted to the right-hand inlet port. The flow range of Pump #2 is 40-200 cc/minute. 100 cc/min is a good starting point. Refer to the NIOSH/OSHA Air Sampling standards for individual tubes.

Control #7. Pump #2 Enable

When the unit is initially turned on with the external switch in-between the two inlet sampling ports, the L.E.D. array will fully light up for a few seconds. It is not desirable to activate Pump #2 at this stage, so this switch is provided to enable the Pump #2 circuit to be activated **after** the L.E.D. display has returned to normal. Once on, Pump #2 stays latched on until the instrument is turned off or until this toggle switch is turned off.

Note: Pump #2 will not go on at this stage but will wait until a detectable level of a V.O.C. is present

Control #8. Trigger Level for Pump #2

This potentiometer determines the V.O.C. level at which Pump #2 will turn on to pull sample air through the adsorber tube. If it is set fully counter clockwise and if Control #7 is on, Pump #2 will turn on as soon as Pump #1 is turned on.

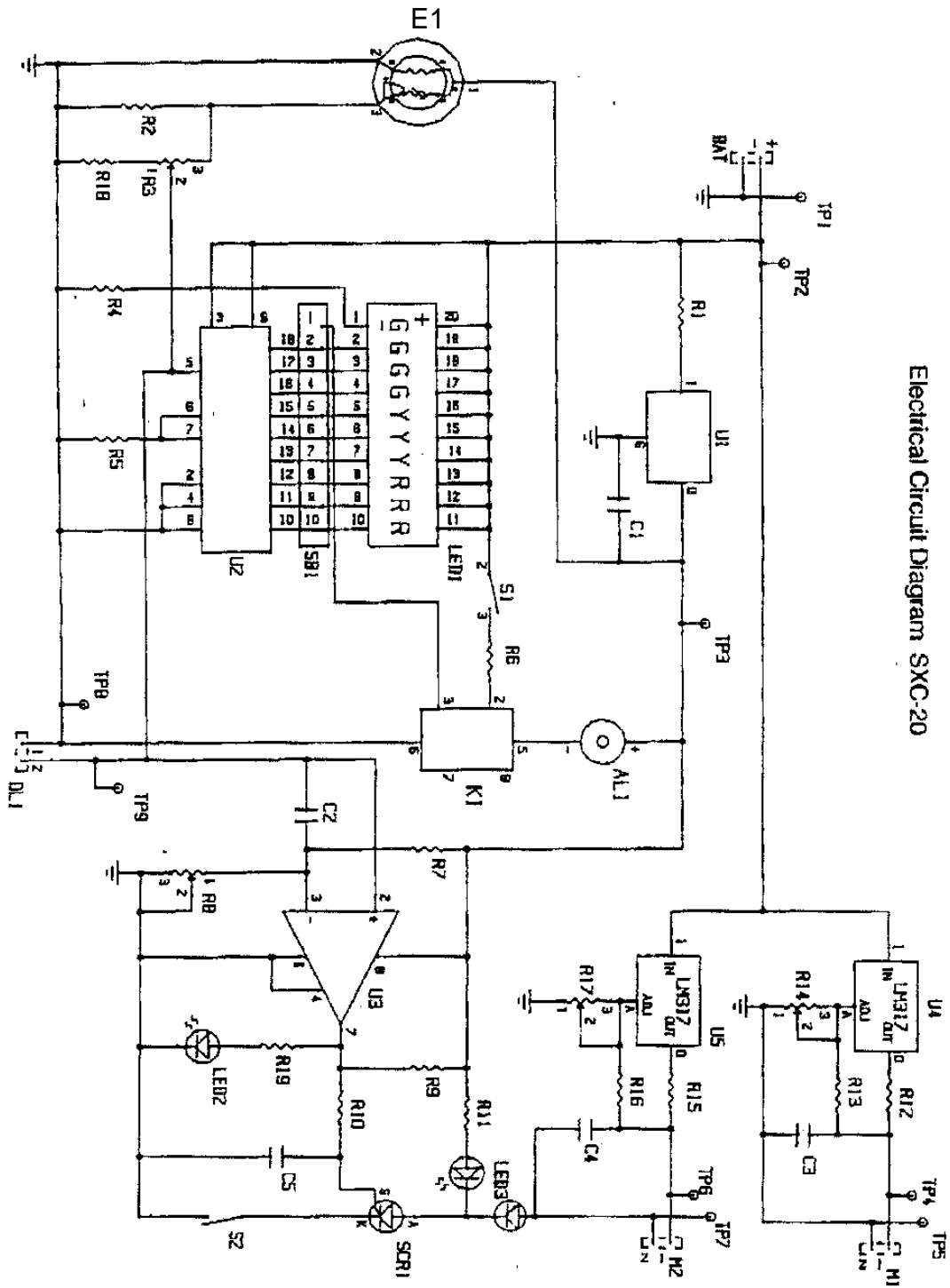
Control #9. Trigger Indicator

This L.E.D. (not visible externally) indicates at what level the trigger is set as determined by the L.E.D. array (#5).

Control #10. Data Logger

This records on a linear time-base the duration and intensity of V.O.C.s present. It is accessed using the serial port of any IBM compatible or Apple Computer. Instructions enclosed.

Electrical Circuit Diagram SXC-20



Setting the Controls **B.**

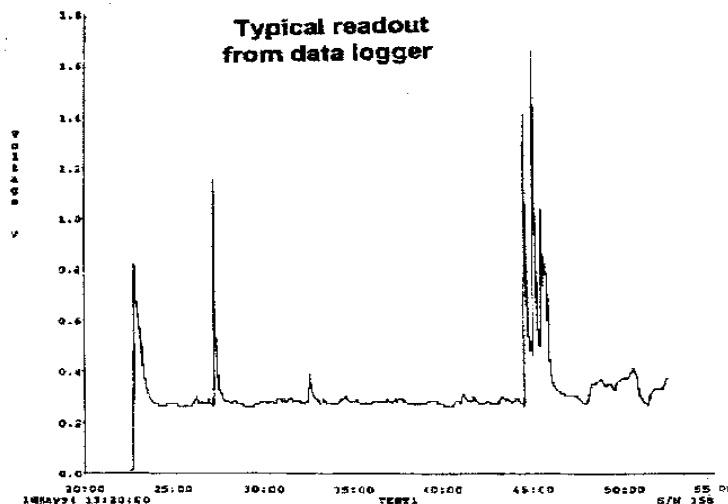
1. Connect the 12v D.C. power source into the upper receptor on the left hand side of the SXC-20 unit. Connect the other end into a 110v outlet. (220v model available)
OR: charge the internal battery with the charger provided for 15 hours and proceed as above. (8-10 hours of running time).
Allow 2-5 minute for warm-up.
2. Turn Pump #1 on with toggle switch on the top of the unit, in between the two inlets.
3. Set the flow of the left-hand inlet to Pump #1 using the suitable flow meter and potentiometer (Control #6).
4. Set "Detector Sensitivity-adjust" (Control #2) as described in section A.
5. Set Pump #2 by turning on Control #7 "Sample Pump #2 Enable". Turn Control #8 "Trigger Level Potentiometer" fully counter clockwise.
A low-flow orifice (part#4300094) is available for flows less than 50cc/min.
6. Fit charcoal or other adsorber tube to inlet of sample pump #2 using tube holder ATH-6 provided. If a larger tube is used, Spectrex can provide larger and longer tube holders, such as the ATH8, ATH-9, ATH-10 (for Draeger and Kitigawa tubes) upon request.
7. Set Trigger level when Pump #2 will go on by adjusting Control #8 while a standard gas is sampled by pump #1 and the L.E.D. array is activated. The trigger indicator (Control #9) will show the trigger level when Pump #2 will go on.
8. Connect the serial port of your computer to the Data Logger. Connect it into the receptacle on the belt-clip side of the unit. Using the software provided, program the Data Logger. (Please see Data Logger instructions.)
9. Turn off the SXC-20 with the main On/Off toggle. The unit is now ready to be used.

- A. Place the unit in the location where sampling is needed or attach to the belt of the individual who will be sampling the ambient air.
- B. Turn main switch on and check that the left-hand green L.E.D. of the diode array is lit. A warm up cycle follows during which all the color displays will briefly turn on.
- C. Push the trigger button on the Data Logger.
- D. Turn on Pump #2 (Control #7)

The unit is now ready for complete gas monitoring.

At the completion of the sampling period, check to see if Pump #2 indicator light is on. If not, then no significant amount of V.O.C.s were pulled through the sampling tube and **it is not necessary to have the tube analyzed on a gas chromatograph.**

If it is indicated that Pump #2 was on, the tube should be analyzed and the data logger information printed out to develop a time scale and to tell when V.O.C. samples were detected.



The SXC-20 is guaranteed for 90 days against any defects in parts of workmanship.

If the instrument is out of warranty, we will charge a nominal fee. For assistance or repairs, please contact Spectrex Corporation:



**3580 Haven Avenue
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(800) 822-3940
Fax (650) 365-5845**

Optional, inexpensive, remote control permits the SXC-20 to control external devices, light switches, appliance controllers, burglar alarms etc.

The System is made up of two units:

1. PF284 Burglar Alarm Interface (Catalog #980-0232 Tech America Div. Tandy – a sister division of Radio Shack. Price \$29.99.)
This plugs into the wall and also into the smallest of the three receptacles on the left-hand side of the SXC-20, (“alarm out”), using a 2.5 mm accessory plug (available from Spectrex Corporation at \$10.00, Catalog #6204330).
2. AM466 Appliance Module (Cat.#980-0185. Approx Price \$13.00).
This plugs into a wall socket and the device which needs to be controlled plugs into the module. (This version is wired for a three prong plug and is rated for 15 amps resistive or 1/3 HP inductive loads.

Note:

- i. Set the lower left switch on the PF284 to position B (control by remote contact closure).
- ii. Be sure that the “unit” and the “house” codes of the two modules are set to identical code values and that these are not the same codes as used by other X-10 modules in use in the same building. Also, no other X-10 module should be set to turn off everything (an option on some control panels.)
- iii. Setting the trigger level on the SXC-20 to control the external device. This is set as previously described in paragraph B7 (see page 8 of manual) by adjusting control #8.
- iv. Tech America can be reached in Fort Worth, TX at number 800-877-0072. They accept major credit cards.

Spectrex Corporation makes no representations about the reliability or suitability for any particular purpose or installation of the system described above. Consequently, we recommend that the installer proceed carefully

with a trial installation, doing such operational and reliability tests as deemed necessary.