

# **FIELD SERVICE TEST AND CHECKS FOR IONIZATION TYPE SENTECH MONITORS**

## **Tools and Supplies Needed**

1. Digital Multi-meter (capable of measuring DC voltage in the milli-volt range at approximately 0.030VDC to 0.400VDC)
2. Small flat blade or jewelers type screwdriver.
3. Small amount of refrigerant gas or calibration gas

## **Preliminary**

Check to see if the unit under test is a single board unit with only a control board or a unit with two boards, the control board and the bridge board which is a smaller board mounted to the right of the control board. (Note: The below listed voltages will be taken from different test points for the two different style units.) Figures 1 through 3 of this document will help to identify the test points and adjustment.

1. With the fuse on the left side of the units outer wall removed place unit into test mode by depressing the top section of SW 1 Position 8 which is located approximately 2/3 of the distance from the top to the bottom of the control board and about 1.5 " from the right side of the board. Position 8 is the switch located to the far right on the DIP type 8 position switch. (See figures 1 or 3). The run / cal switch is located next to the large black heat sink on the left side of the circuit board three inches from the top will be in the right position or run position for units that are single board configuration. (See figure 3). For units that are a two board configuration the run / cal switch is located in the center of the smaller bridge board located to the right of the control board and will also be switched to the right position (RUN). (See figure 2)
2. Reinstall the fuse on the left side of the unit applying power to the unit. After approximately 90 seconds of warm up period check to see if the sensor is getting hot to touch. Be very careful because the sensor operates at very high temperature. (The sensor is the black device which plugs into the tube type socket located on the aluminum mounting bracket for 2000 series and 1000 series models).

## **DC Voltage Tests and Checks to be performed on System 1000 and system 2000 units**

1. The first check is to measure the DC voltage drop from the right side of R35 to the left side of R36 .The two Resistors are located in the upper left corner of the control board. The DC voltage drop between these two points should be approximately 0.350 volts DC and should be present if the sensor is hot. This step should be performed on units with single board configuration and units with both the control board and the bridgeboard.(See figures 1 AND 3)
2. The next step is to be performed on units that have single board configuration (control board only). For units with both the control board and the bridgeboard refer to section B of this step
  - A. Measure the DC voltage drop from TP 1, located at the bottom right corner of the control board at the right of the two black heat sinks, to TP 8 that is located approximately 1.5 inch above the center mounting screw on the circuit board.(See figure 3) This voltage drop has to be greater than 0.030 VDC but less than .100 VDC at ambient atmosphere with no chlorine base chemicals in the atmosphere. The chemicals included are any solvents that are chlorine based, any cleaners that are chlorine based and refrigerant gases.
  - B. To test this Voltage Drop on units with both the control board and the bridgeboard, the measurement is taken by measuring the DC Voltage drop across R11. R11 is located approximately ½ inch from the top edge of the circuit board and about 1 ½ inch from the left edge of the board.(See figure 1)
3. If the two above voltage drops do not fall into this range, they will need to be adjusted to within limits. On units with single board configuration, while monitoring the DC voltage drop from TP 1 to TP 8 adjust potentiometer R46 located to the right of the large black heat sink located approximately two inches below R35 and R36 to approximately 0.050 VDC.(See figure 3) On units with both the bridgeboard and the control board this adjustment is accomplished by measuring the voltage drop across R11 on the control board and while measuring adjust R4 on the bridgeboard (Smaller board) to approximately 0.050 VDC.(See figures 1 and 2) After this adjustment, measure the DC voltage drop again from the right side of R35 to the left side of R36. This voltage drop must fall between 0.320 VDC and 0.400 VDC.
4. At this point check the meter indication on the front door panel of the unit to see that the PPM meter is reading 0 PPM.

- 5 The next step is to test the unit for sensitivity by applying a sample of refrigerant gas to the unit. On model 1020 this is accomplished by applying a small amount of refrigerant gas next to the plenum fan filter on the right side of the unit and watching the meter indication on the front panel of the unit. On models 1030, 1030A, 1030-SII, and 1033, this is accomplished by unscrewing the 5 micron filter plastic bulb located on the right outer wall and applying a sample of gas at this point. On model #s 1204,1208 and 1234 the 5 micron filter is mounted internal to the case and attached to the intake manifold and is accomplished by removing the plastic bulb from the filter and applying a small amount of refrigerant gas at this point. Remember that these units are very sensitive and it does not require very much gas to see a considerable indication on the front panel meter. On model 2000 units the same test accomplished by disconnecting the hoses at the input air manifold and applying a small quantity of refrigerant gas at this point.
6. The next step is to put the unit back into the run mode. This is accomplished by depressing the bottom section of SW1 position 8. After waiting approximately 3 minutes rerun the test involved in step 5 to check and see that the unit goes into alarm.(See figure 1 or 3)
7. If any of the above checks, can not be accomplished please contact the Technical Support Department at Sentech Corporation at the phone numbers below.

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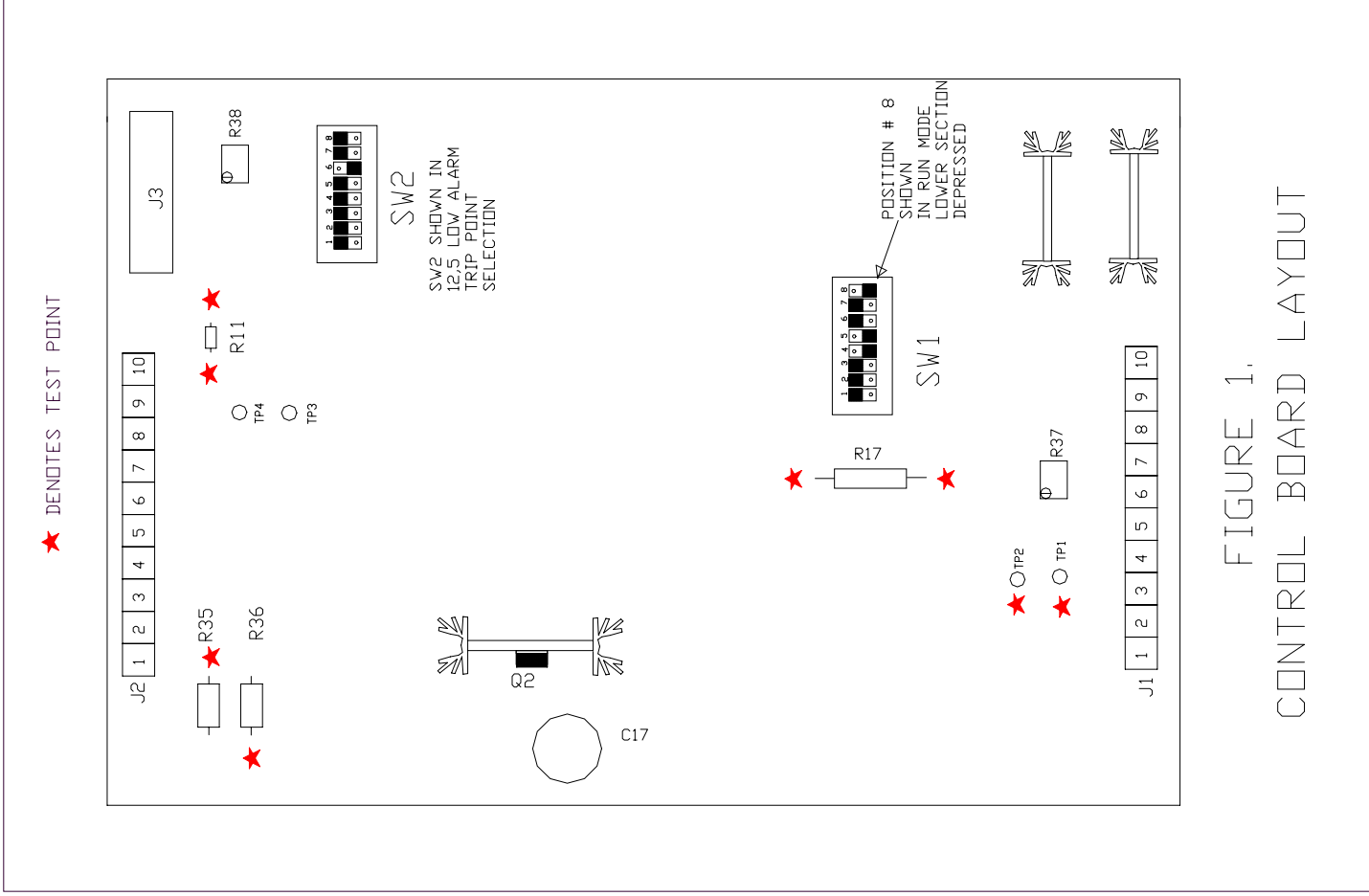


FIGURE 1.  
CONTROL BOARD LAYOUT

★ DENOTES TEST POINTS  
AND ADJUSTMENT

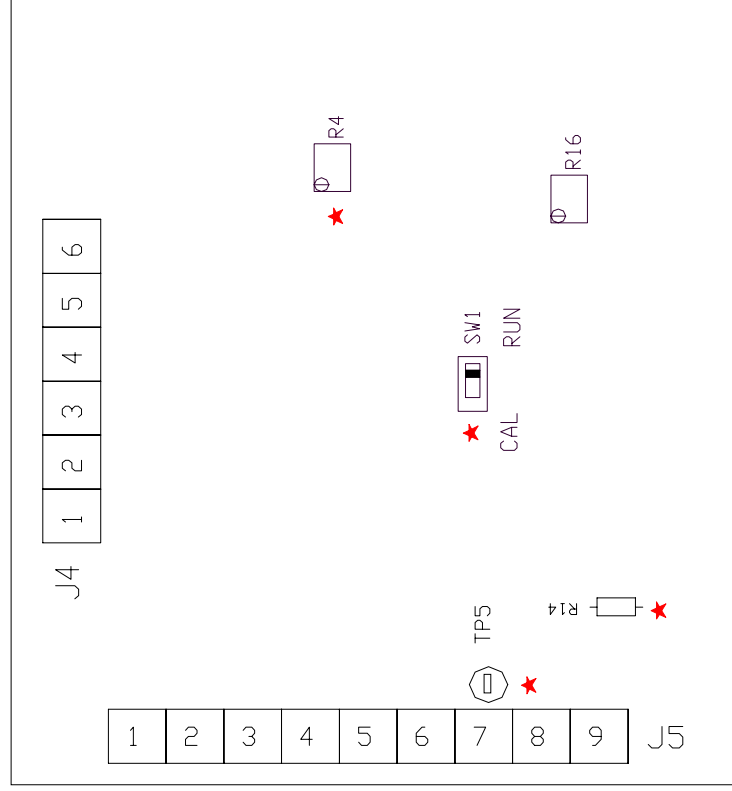


FIGURE 2  
BRIDGE BOARD LAYOUT

★ Denotes test points and adjustment

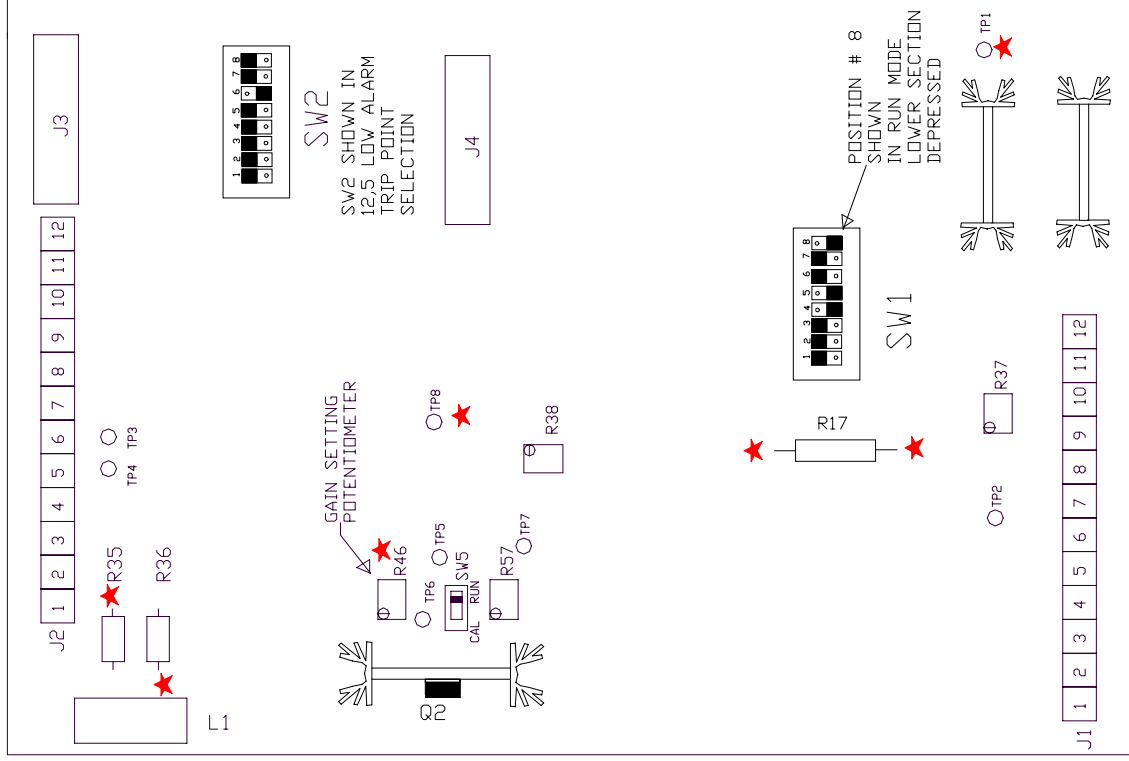


FIGURE 3.  
CONTROL BOARD LAYOUT FOR  
MODELS WITHOUT BRIDGE BOARD