

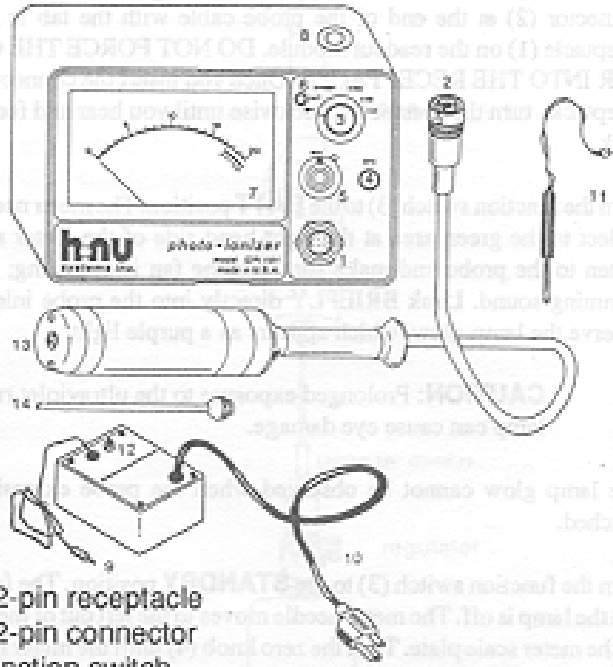


**MODEL IS-101**  
*Quick-Start*  
Manual



# MODEL ISPI-101

readout module



1. 12-pin receptacle
2. 12-pin connector
3. function switch
4. zero knob
5. span control
6. low battery indicator, LED
7. meter
8. charger minijack
9. charger miniplug
10. charger power cord
11. charger, LED
12. probe sample inlet
13. connector adapter ring
14. probe extension

**Figure 1**

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## PREPARING FOR FIELD USE

Attach the probe to the readout module. Align the slot on the 12-pin connector (2) at the end of the probe cable with the tab in the 12-pin receptacle (1) on the readout module. **DO NOT FORCE THE CONNECTOR INTO THE RECEPTACLE.** Once you insert the connector into the receptacle, turn the connector clockwise until you hear and feel a distinct click.

Turn the function switch (3) to the **BATT** position. The meter needle should deflect to the green area at the right-hand side of the meter scale plate. Listen to the probe and make sure that the fan is operating; it makes a humming sound. Look **BRIEFLY** directly into the probe inlet (13) and observe the lamp glow, which appears as a purple light.

**CAUTION:** Prolonged exposure to the ultraviolet rays of the lamp can cause eye damage.

The lamp glow cannot be observed when the probe extension (14) is attached.

Turn the function switch (3) to the **STANDBY** position. The fan operates and the lamp is off. The meter needle moves to the left out of the green area on the meter scale plate. Turn the zero knob (4) until the meter needle rests at 0. (The ISPI-101 can be electronically zeroed only while the function switch is in the **STANDBY** position).

Check the span setting (1.0 for 9.5 eV lamps, 9.8 for 10.2 eV lamps, 5.0 for 11.7 eV lamps) and adjust as necessary using the span control (5). Connect the regulator to the calibration gas canister (see figure 2). Using flexible tubing (three inches long is sufficient, one quarter inch diameter), connect the calibration gas to the probe inlet (13, Figure 1), and open the valve on the regulator. Use of the probe extension (14, Figure 1) is optional during this procedure. Recheck the electronic zero and adjust as necessary.

Once the ISPI-101 is electronically zeroed, turn the function switch (3, Figure 1) to the **0-2000** range position (X100).

## CALIBRATION TEST SET-UP

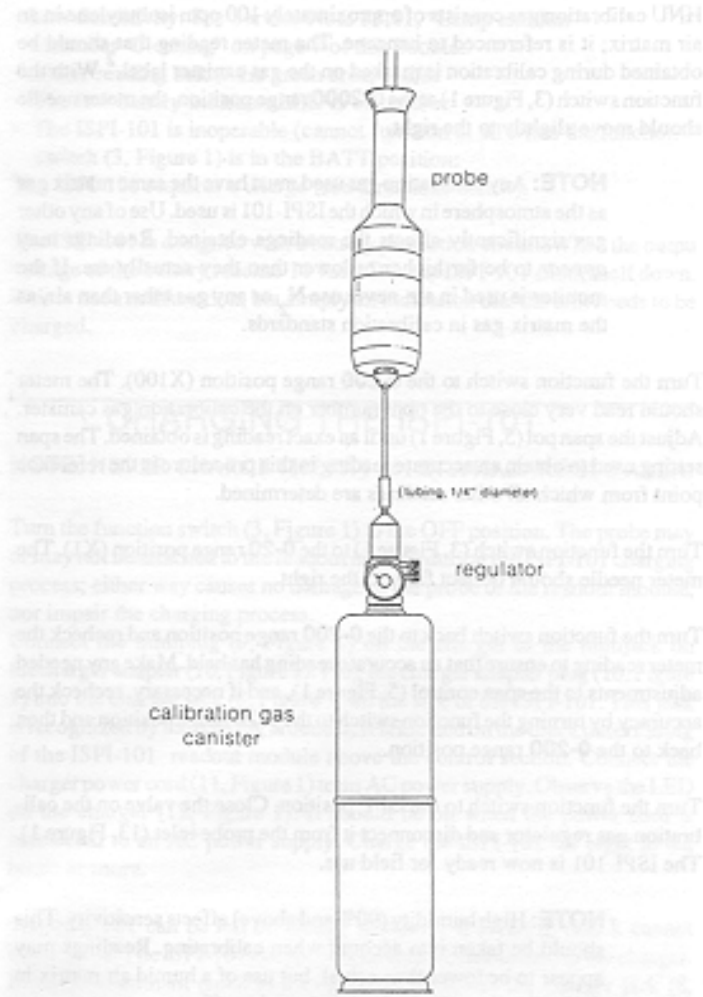


Figure 2

## CALIBRATION

HNU calibration gas consists of approximately 100 ppm isobutylene in an air matrix; it is referenced to benzene. The meter reading that should be obtained during calibration is marked on the gas canister label.<sup>2</sup> With the function switch (3, Figure 1) at the **0-2000** range position, the meter needle should move slightly to the right.

**NOTE:** Any calibration gas used must have the same matrix gas as the atmosphere in which the ISPI-101 is used. Use of any other gas significantly affects the readings obtained. Readings may appear to be far higher or lower than they actually are. If the monitor is used in air, never use  $N_2$  or any gas other than air, as the matrix gas in calibration standards.

Turn the function switch to the **0-200** range position (X100). The meter should read very close to the ppm number on the calibration gas canister. Adjust the span pot (5, Figure 1) until an exact reading is obtained. The span setting used to obtain an accurate reading in this procedure is the reference point from which all other readings are determined.

Turn the function switch (3, Figure 1) to the **0-20** range position (X1). The meter needle should deflect fully to the right.

Turn the function switch back to the **0-200** range position and recheck the meter reading to ensure that an accurate reading has held. Make any needed adjustments to the span control (5, Figure 1), and if necessary, recheck the accuracy by turning the function switch to the **0-20** range position and then back to the **0-200** range position.

Turn the function switch to the **OFF** position. Close the valve on the calibration gas regulator and disconnect it from the probe inlet (13, Figure 1). The ISPI-101 is now ready for field use.

**NOTE:** High humidity (90% and above) affects sensitivity. This should be taken into account when calibrating. Readings may appear to be lower than actual, but use of a humid air matrix in the calibration standard minimizes this effect.

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## QUICK CHECKS

- Low Sensitivity: See Service Note 86-01, "Lamp and Ion Chamber Cleaning" on page 7 of this booklet.
- Meter reading below the green area; and/or
- The low battery indicator LED is on; and/or
- The ISPI-101 is inoperable (cannot function at all when the function switch (3, Figure 1) is in the BATT position:

The ISPI-101 requires a charge (see directions below).

The ISPI-101 is designed with a battery protection circuit. When the output voltage of the battery reaches 11 volts DC, the ISPI-101 shuts itself down. This is not a malfunction, but simply an indication that the unit needs to be charged.

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## CHARGING THE ISPI-101

**NOTE: NEVER CHARGE THE ISPI-101 IN A HAZARDOUS AREA!**

Turn the function switch (3, Figure 1) to the OFF position. The probe may or may not be attached to the readout module during the ISPI-101 charging process; either way causes no damage to the probe or the readout module, nor impair the charging process.

Connect the miniplug (9, Figure 1) on the charger to the minijack on the charger adapter (10, Figure 1). Plug the charger adapter plug (10, Figure 1) into the charger jack (8, Figure 1) on the side of the ISPI-101. This jack is recognized by the red ring around it. It is located on the black outer casing of the ISPI-101 readout module above the control section. Connect the charger power cord (11, Figure 1) to an AC power supply. Observe the LED on the charger (12, Figure 1). It should be on when the power cord is connected to an AC power supply. Charge the ISPI-101 for eight to ten hours or more.

The ISPI-101 can be left on charge whenever it is not in use. It cannot overcharge. The ISPI-101 cannot be operated when attached to the charger. If any contaminant (such as metal shavings) enters the charger jack (8, Figure 1) and causes a short, the ISPI-101 cannot operate.

## CLEANING PROCEDURE

### FOR MODEL IS-101 LAMP AND ION CHAMBER

#### LAMP REMOVAL

Remove the probe from the unit. Hold the probe upright, cable down. Remove the two cross headed screws that hold the black end cap. Remove the end cap. Remove the two screws holding the ion chamber on and lift the chamber off the probe. Carefully pry off the black nylon hole plug on the side of the lamp housing exposing the lamp retaining screw. Remove any remaining silicone sealant. Retain hole plug. The light source remains in the probe body. Place your hand over the top of the probe and carefully tilt. The lamp falls into your hand. Note the eV number etched on the lamp.

#### LAMP CLEANING 10.2 and 9.5 eV

- Put a drop of HNU cleaning compound (part#81-101-500) on the lamp's lens.
- Using a nonlinting tissue, rub in a circular motion until all residue is removed.
- Rinse with hot, clean tap water, and dry with nonlinting tissue.
- If the lens is still not clean, repeat steps a, b, and c.

#### LAMP CLEANING 11.7 eV

- Clean the lens only with freon or any chlorinated organic solvent to remove deposits. Use a nonlinting tissue.
- DO NOT use HNU cleaning compound or any water miscible solvent on lamps.
- If still dirty, repeat step a.

#### ION CHAMBER CLEANING

- Remove the "O" ring from the side opposite the wire mesh and save.
- Agitate the whole assembly in a beaker of methanol or acetone, or place the beaker and contents in an ultrasonic bath for ten minutes.
- Remove the beaker and shake out extra solvent. Dry overnight at room temperature or bake for two hours in a drying oven at 100 °C. Allow chamber to cool before reinstalling. In an emergency, careful use of a hairdryer is permissible.

#### REASSEMBLY

- Hold the probe upright, cable down, and replace the lamp with the lens uppermost.
- Apply a small bead of RTU silicone sealant around black nylon hole plug's face and install the hole plug, wiping clean any extruded sealant. Allow sealant to cure prior to operating instrument.
- Replace the "O" ring in the groove in the ion chamber (side opposite the wire mesh).
- Place the ion chamber over the lamp with the wire mesh side up. Align all connection pins, and the vent hole in the ion chamber. (The ion chamber's vent hole lines up with the probe's vent hole, which has a small black "O" ring around it).
- Replace the probe cap noting the screw holes' alignment. Replace the two screws and tighten evenly. The unit is now ready to be used.

# PROBE ASSEMBLY

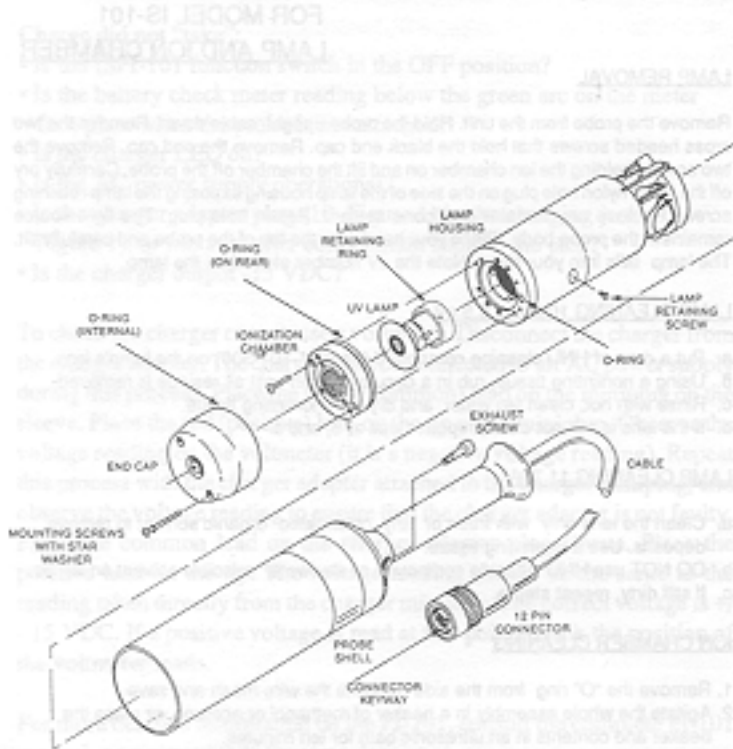


Figure 3