The model A-21ZX is designed for sensing ozone and for estimating ozone levels in the 0-10 ppm range. It is not an analyzer, and there is some sensitivity to other oxidizing gases. Except for special applications, its routine use is only recommended for the 0-1 ppm range. The instrument can be run up to 8 hours from its rechargeable batteries, and it can be run from AC power as a permanent monitor. Before operating the instrument read all instructions and the conditional warranty statement in this manual.

OPERATION

Turn the function switch to On. Digits should appear on the readout. If there are no readout digits, the batteries are discharged. (For charging, see Battery Operation.) The A-21ZX instrument can also be used as a permanent monitor in the On position of the function switch using the charger as a power source. In this case, the average levels of the ozone shouldn't exceed .1 ppm to maintain stable readings and to avoid corrosion of the electronics. Readings above 1 ppm should be brief.

For leak checking, bring the sensor as close as possible to the suspected leak. For monitoring, orient the instrument so that the sensor is perpendicular to or facing away from any air flow. If there is air flow into the gas inlet, the readings may be higher than they should be.

The A-21ZX responsivity slows at temperatures below 50 deg F (15 deg C). To minimize this, keep the instrument warm by keeping its power on or by storing it in a warm place until just before use.

Acid gases and certain other conditions cause the instrument's readings to creep up after establishing a stable point. Outdoors: operate at above freezing temperatures and during the day. Semicontinuous operation requires that the sensor be heated. Then if the instrument is turned on before unplugging the AC charger, the instrument is ready to use immediately.

Otherwise warm-ups are required with a major purpose being to "burn-off" trace chemicals that the sensor will absorb if it has been idle and not heated. Recommended A-21ZX warm-up times by either battery or AC adapter are:

<table>
<thead>
<tr>
<th>Time Since Last Powered</th>
<th>Warm-up Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute - 3 days</td>
<td>10 minutes</td>
</tr>
<tr>
<td>3 - 7 days</td>
<td>1 hour</td>
</tr>
<tr>
<td>more than 1 week</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

To minimize warm-up time, check the A-21ZX for full response with our OG-3 Ozone Source Calibrator.

CALIBRATION

The A-21ZX will read from .01 ppm to over 10 ppm of ozone. Its primary calibration point is .1 ppm. Its greatest accuracy: 20% - 1 ppm. The calibration should be checked if the instrument’s response gets slower, less reactive, or tends to creep up with no apparent ozone present. The instrument should be recalibrated annually and more often if it is in constant use. Sensor failure is indicated by a permanent very high reading. (The Eco Sensors OG-3.1 ppm UV source can be used for recalibration.)

BATTERY OPERATION

The lo bat light will come on when there are about 10 minutes of use left. The batteries are a special NIMH design and are not user replaceable. They should last for several years of daily operation and much longer for occasional operation. To charge, plug in the charger and turn the function switch to the Off position.

The batteries will require 14 hours (overnight) to recharge and should provide up to 8 hours of use from a full charge. A rough guideline is that there are 30 minutes of use available per hour of charging. The A-21ZX can be recharged in vehicles using 12 volt output cigarette lighter adapters available from electronic stores (5.2/5.2 mm jack, center +).
The OG-3 Ozone Source Calibrator has been developed to fulfill the need for field calibration of our ozone instruments. It uses a precision UV micro-lamp that emits .1 ppm of ozone for an easily-followed set of calibration conditions. (1 ppm output calibrators are also available). The OG-3 does not substitute for a complete laboratory set-up generally required for primary calibration. The OG-3 is very useful for checking instruments in the field to verify that they are basically still within calibration, and it can be used to recalibrate them at .1 ppm if usable but not standards-traceable calibration is all that is required. Otherwise, the OG-3 is still useful to indicate when an ozone sensing instrument should be returned to the laboratory for recalibration.