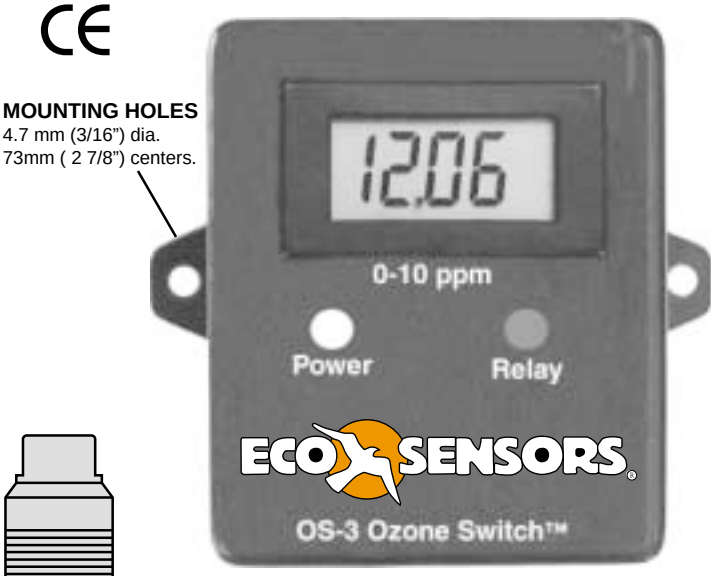
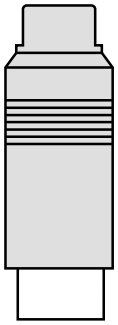
ECO SENSORS, INC.

OZONE SWITCH™
Model OS-3

INSTRUCTIONS FOR USE





Precalibrated sensor module SM-10.
Plugs into 1 meter cable from the OS-3.

GENERAL

The model OS-3 acts like a thermostat to control ozone generators and alarms based on an adjustable ozone set-point. The standard available range is 0-10 ppm. The design incorporates hysteresis or a "dead band" to avoid system "chatter." The SPDT relay contacts will handle up to 5 amps at 250 volts or up to a 1/8 HP motor. The OS-3 should not be used in the presence of acid gases, strong VOC's, or strong halogen fumes.

The instrument is conditionally warranted for one year. Save a copy of your purchase document as a proof of purchase and date, and read the warranty statement at the and of this manual.

OPERATION

First, verify that the instrument is working as received. Connect your AC adapter to the power jack or your 12-24 V DC supply to terminals 4 and 5 of terminal block TB1 found on the inside back of the instrument. Caution!: Many AC adapters and DC supplies deliver a higher voltage than on the nameplate - "24 volts" can be 32 volts, etc. Verify that the voltage to the input does not exceed 24 volts and that it is not AC. In either case, major damage to the instrument can result.

The sensor must be conditioned to burn off chemicals it may have absorbed during shipping and storage before it develops full ozone sensitivity.

Allow 1-8 hours warm-up before attempting to test the instrument and at least 24 hours before using the instrument.

It is recommended to test the instrument for positive response with an ozone generator when the instrument is received and again at the site where the instrument is installed. Eco Sensors, Inc. offers an inexpensive battery-operated, hand-held ozone generator for this test purpose, the Model OG-1.

Adjust the set-point if required. It should not be set below .5 ppm. A data logger can be connected to TB1 terminals 1 and 2. The output will be 0-2 volts. Voltage readings are directly proportional to the ozone concentration on a scale of 1 volt = 10 ppm.

You can now connect the Ozone Switch(tm) to external devices such as an ozonator to be controlled or an alarm circuit. Disconnect the power to the generator control wiring and the DC power to the instrument while connecting the wiring. Bring the external wiring through the bottom access hole of the instrument or drill the access holes as required. Wire generator control circuits only to terminals 2 and 3 of the terminal block TB2. Do not leave oils, solvents, or greases on, In, or near the Instrument. Their fumes, however, minor, can cancel the instrument's ozone responsiveness.

CALIBRATION

The Ozone Switch(tm) is shipped from the factory calibrated to detect at 10 ppm. Lower values than that are settable by the calibrated control found by opening the back cover. The calibration should be within 20% from .50-10 ppm. We do not recommend operating with a set-point for detection below .50 ppm. The calibration will be affected by greases, oils, solvents and other VOC generators in the area (sensitivity will appear to be reduced), or by extremes of temperature and humidity by oxidizing chemicals such as acid gases (sensitivity will appear to be increased). Note that the instrument should be recalibrated after changing the sensor and at least annually. Rough- check of the instrument's functionality should be made every three months by presenting it with ozone and verifying that It detects.

SERVICE AND MAINTENANCE

Do not attempt to do board-level repairs yourself. This will void the warranty.

SENSOR - The ozone sensor is incorporated into a precalibrated module, part no. SM-10. This plugs into the cable from the OS-3. In the event of a sensor failure or deviation from correct calibration, the senor module should be replaced rather than trying to repair or recalibrate it.

AC POWER ADAPTERS - The Ozone Switch(tm) will not operate properly if it is not receiving 12-24 V DC at 200 mA. Check your power supply circuit or AC adapter to ascertain that it is "on" and is supplying the correct power. AC adapters can burn out during lightening strikes or other electrical surges, but this is very unlikely that the Ozone Switch(tm) will completely fail during such surges due to its extensive input power protection circuity. Eco Sensors can supply AC adapter for North America. Elsewhere, AC adapters should be purchased through our distributors or locally using specifications found on the Eco Sensors website www.ecosensors.com.

SPECIFICATIONS

Sensor: Heated metal oxide semiconductor. Operates at 200 degrees C. The sensor is incorporated in a precablibrated preamplifier module which plugs with a cable from the OS-3 Ozone Switch™
Standard operating range: 0-10 ppm.
Accuracy: 20% in the .5-10 ppm range.
Response time: Within 2 minutes of when ozone reaches the sensor.
Temperature and humidity range: 50-80 deg F (10-27 deg C).
For indoor use only. 30-60% relative humidity.
Supply voltage required: 12-24 volts DC, 200 mA. Ground -
Adapter plug: 5.5mm/2.5mm female, center +.
Relay contacts rating: SPDT non-latching, 5 amps, 250 volts AC, or 1/8 HP inductive load.
Size: 3" X 2 1/2" X 15/8" (76 X 64 X 42 mm).
Weight: 5 oz. (140 grams).
Conformity: This product conforms to the European Community ICE) requirements for emissions (EMI) and interference immunity.

SAFETY FEATURES

Loss of power protection: relay opens (shuts off generator) when the instrument loses Power,
Enclosure: Flame retardant ABS, UL approved. Relay: UL and CSA approved.
Electrical: (a) Circuits operate at 24 volts, 200 mA or less. (b) Power input circuitry includes automatically resetting fuse, polarity reverse protection diode, and overvoltage protection diode.

PRECAUTIONS

- Allow at least 1-4 hours warm-up for functionality testing and 24 hours warm-up for operational use.
- Read all the instructions in this manual.
- Keep the instrument dry. Never let water or other liquids into the sensor.
- Do not drop the instrument or subject it to continuous vibration.
- Do not store or operate the instrument in high levels of dust.
- When operating at lower temperatures or high humidity, such as warehouses or refrigerated areas, for correct and reliable operation please contact Eco Sensors or your distributors about special provisions.
- Do not attempt to service the instrument yourself. Service should only be done by authorized technicians, or you will void the warranty.
- Do not clean the instrument with cleaning chemicals or solvents. Clean it with a damp cloth.
- Do not operate the instrument near heavy aerosols (spray) usage or where oxygen is being administered.
- The sensor element, which is very small, operates at a temperatures of about 200 deg C (392 deg F). Do not operate the instrument where this could be a problem.
- Do not operate the instrument or rely on its readings where there are high concentrations of:

    - Chlorine or other halogen compounds
    - Sulfur compounds
    - Strong VOC's (hydrocarbons)
    - Urine residues and ammonia compounds
    - Acid gases such as sulfuric or nitric acid fumes

When in doubt, operate the instrument at least 24 hours in your worst case environmental condition to see if it will operate properly.

WARRANTY

This product is warranted against detects in materials and workmanship for one year following the date of purchase by the original owner. This warranty does not include damage to the product as a result of misuse, accident, damage, modifications or alterations, and it does not apply if the instructions in this manual are not followed.

If a defect develops during the warranty period, Eco, Sensors at its election will repair the instrument or will replace it with a new or reconditioned model of equivalent quality. In the event of replacement with a new or reconditioned model, the replacement unit will continue the warranty of the original unit.

If the product should become defective during the warranty period, it should be returned freight prepaid with proof and date of purchase to the address indicated by calling (800) 472-6626,r faxing (505) 988-1315 or e-mailing to sales@ecosensors.com

Except as provided herein, Eco Sensors makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Eco Sensors shall not be liable for loss or use of this instrument or other incidental or consequential damages, expenses or economic loss, or claims for such damage or economic loss.

This warranty gives you specific rights, and you may also have other rights which vary from state to state.

RECORD YOUR SERIAL NUMBER HERE_____

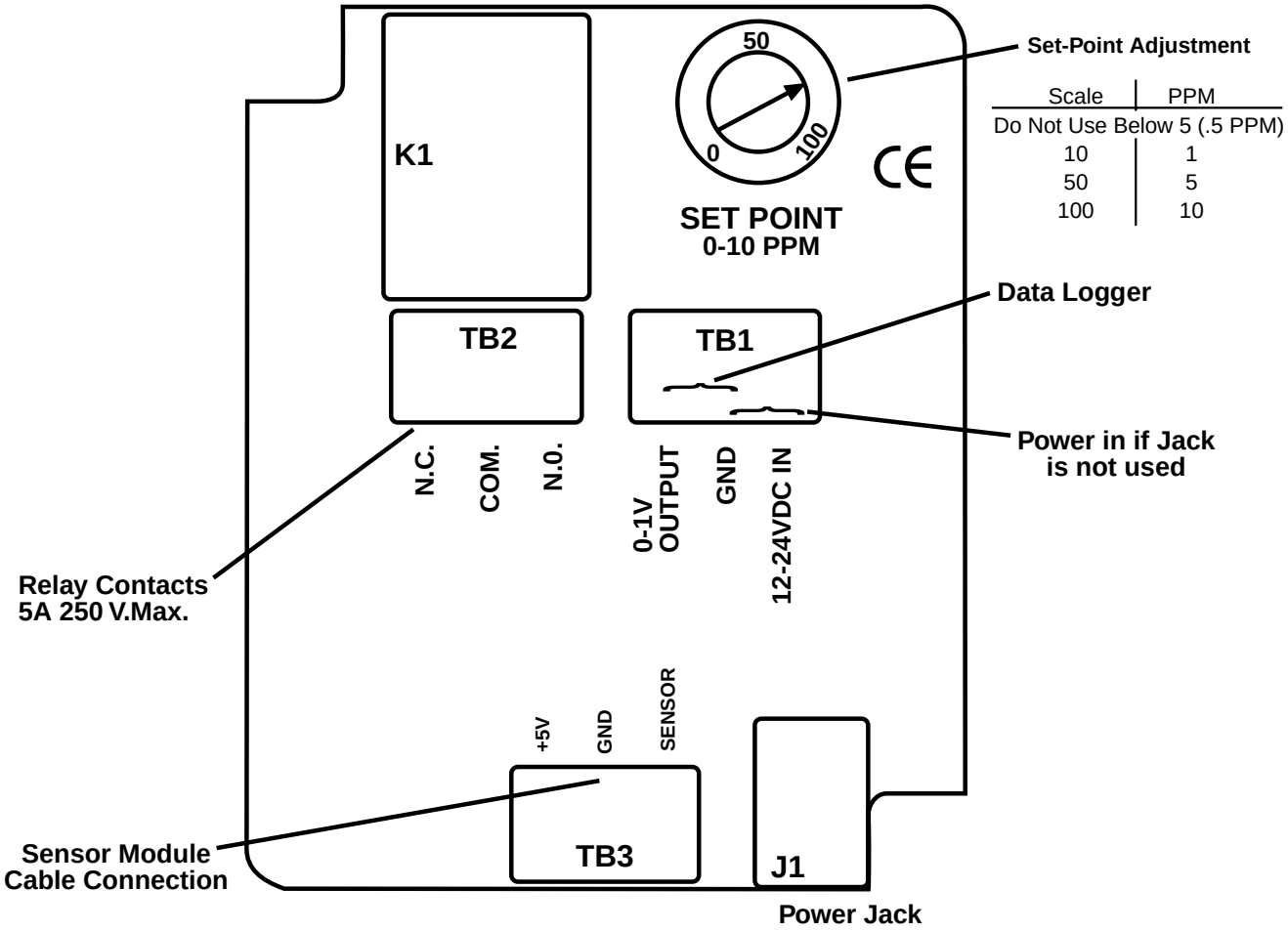
KEEP THIS MANUAL FOR YOUR RECORDS

RECOMMENDED ACCESSORIES FOR THE OS-3

OG-1 Ozone Test Generator Hand-held. Generates up to about 7 ppm for verifying instrument response.

OG-2 Ozone Source Calibrator Precision UV lamp calibrated ozone source. Generates .1 ppm reference concentration. Battery operated. Small and simple to use.

DL Series Data Loggers Tiny battery-operated data loggers record data for later analysis in PCs.



CAUTION! Avoid excessive touching of the inlet end of the sensor and keep it free from chemicals, lubricants, dust, water, etc. Do not use silicone caulking compound or RTV near the sensor

More information about our products and applications at:
www.ecosensors.com