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ECO SENSORS, INC.

Ozone Monitor and Controller

Model C-30ZX

INSTRUCTIONS FOR USE

Before you read further! Be sure that the C-30ZX warms up for at least one hour during your first test; thereafter warm-ups of about 5 minutes should be sufficient if the instrument has recently been used. It is a good precaution to warm-up the instrument overnight to burn off any absorbed chemicals that affect the calibration.

GENERAL DESCRIPTION

The Eco Sensors® model C-30ZX makes ozone monitoring and system control simple and inexpensive. The instrument is not a primary standard and is sold for general monitoring rather than precise measurements. The C-30ZX can be used outdoors under certain moderate temperature and relative humidity conditions.

OPERATION

There is no off-on switch. To power up the instrument, simply plug in the AC adapter or connect 12-24 volts DC. At least one bar on the display will light up. The first green bar is the "on" pilot light; any additional illuminated LED color bars indicate ozone in the area.

It is recommended to test the instrument for ozone response using an ozone generator. Eco Sensors offers hand-held battery-operated test generators.

DATA READOUT

Data can be read out in several ways from the C-30ZX:
(See wiring diagram on the other side of this sheet)

1 - LED Display - This is a ten segment "bar graph" or "color bar" display that reads 4 green segments, three yellow segments, and three red segments. The first green segment serves as a pilot light to indicate that the instrument is receiving power. The second green segment comes on at .02 ppm of ozone, the first yellow at .05 ppm, the first red at .1 ppm, and the final red at over .14 ppm of ozone. Complete calibration is shown in the Bar Graph Calibration chart.

2 - Audio Alarm - Comes on at .1 ppm (first red bar) if the alarm switch is on. This trigger threshold can be changed to detect at any other LED color bar point down to .03 ppm (third green bar) as shown on the other side of this sheet.

3 - External Outputs - As can be seen on wiring diagram on the other side of this sheet, a terminal block inside the C-30ZX allows connections to external functions as follows:

Terminals	Function
1 and 2	0-3 volts DC signal output to data logger, RAP-7800, or control systems.
2 and 3	DC power supply input if the AC adapter is not used. These connections can also be used to supply power to the RAP-7800.
4 and 5	Relay contacts normally open.
5 and 6	Relay contacts normally closed.

There is a 2-circuit 3.5 mm jack is on the bottom of the C-30ZX. This is to be compatible with the accessory plugs of the C-30Z, and also as a jack for the plug connection of the Eco Sensors DL-2 data logger.

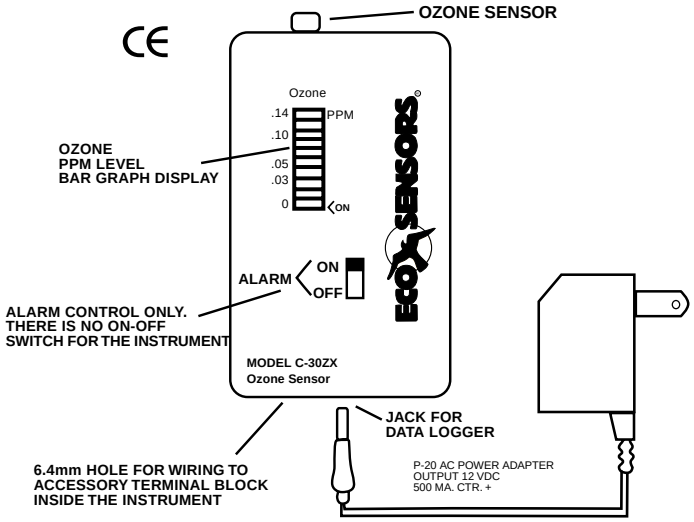
SPECIFICATIONS

The C-30ZX has the following specifications:

- Sensor: Heated metal oxide semiconductor.

- Sensitivity to ozone:
  0-.14 ppm on the LED display
  0-.30 ppm by external voltage measurement
  Detection threshold: .02 ppm

- Response time: 10's of seconds to respond and somewhat longer to recover.
- Accuracy: 10-20% depending on the conditions.
- Recommended general function check: every three months. Recommended calibration check every year.
- Temperature range: At least 15-27 degrees C (60-80 degrees F).
- Size: 85 X 35 X 60 mm. (3 1/4" X 1 3/8" X 2 3/8")
- Weight: 140 grams (5 oz.)
- Power requirement: 12-24 volts DC at 300 ma. (120 volt 60 Hz. AC adapter supplied to North American customers).
- Fusing: Self-resetting fuse that triggers at 250 ma. current or more than approximately 24 volts input. Has overvoltage protection diodes to eliminate supply voltage spikes and surges.
- Enclosure material: flame retardant ABS.
- Mounting: by magnetic backing or hanging adapter supplied.



ACCURACY AND CALIBRATION

The C-30ZX calibration is shown on the other side of this sheet. The response is linear with the scaling of 1 volt = .1 ppm.

The C-30ZX is most accurate in the .05-.14 ppm range and should be 10-20%. Below .05 ppm, the accuracy can be affected by electronic and chemical interferences. .03 ppm is the lowest reading that generally should be used.

If the LED reads high (all red) with no ozone present, the possible causes are:
1-Broken sensor, such as from dropping the instrument
2-A strong chemical interference such as from acid gases or NOx.
3-The sensor calibration has changed.

SERVICE AND MAINTENANCE

Please contact your distributor about service. In emergencies, the factory service number is (800) 472-6626, the fax is (505) 988-1315 and the e-mail is sales@ecosensors.com. We recommend that the instrument be maintained and recalibrated annually.

Sensor - The sensor is the only component of the instrument that is likely to fail or to require checkups. We recommend that the sensor be checked for satisfactory operation every three months, or more often in environments that are dusty, have high levels of chlorine or halogen compounds, or where there is dust or water spray. The sensor should be observed to see if it is responsive to changes in ozone level and if the ppm readings are reasonable. This can be done with the Eco Sensors model OG-2 hand-held ozone generator.

Indications of a sensor problems are:

- The instrument reads full scale all the time.
- The ozone concentration readings seem too high and tend to get even higher.
- The instrument doesn't respond at all.

Some of these problems can be compensated for by circuit adjustments or simple maintenance. Sensor replacement, however, it is not easy and must be done by Eco Sensors or its authorized service representative.

AC Power Adapters - Replacements are available from your distributor or Eco Sensors. Outside of North America, AC adapters that satisfy local codes and conditions should be purchased locally using electrical and mechanical specifications supplied by Eco Sensors and found at the web site www.ecosensors.com "products" and then "AC adapters and Power sources."

PRECAUTIONS

- Allow at least 5 minutes warm up, and better, an hour or more. If the instrument hasn't been used for days or weeks, an overnight warm up will be helpful to "burn off" any contaminants that may have been absorbed by the sensor.
- Read all instructions in this manual.
- Keep 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.
- Do not attempt to service the instrument yourself this will void the warranty.
- Do not clean the instrument with cleaning chemicals or solvents. Clean it with a damp cloth or with Armor All™.
- Do not operate the instrument near heavy aerosols (spray) usage or where oxygen is being administered.
- Do not operate the instrument or rely on its reading where there are high concentrations of:

  - Chlorine or other halogen compounds
  - Sulfer compounds
  - Nitrides of nitrogen (NOx)
  - Urine residues or 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 defects 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.

To return the instrument, contact your distributor, or call Eco Sensors at (800) 472-6626 or e-mail to sales@ecosensors.com to receive return instructions and a Return Authorization (RGA) number.

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 of 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 AND WARRANTY FOR YOUR RECORDS.

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CALIBRATION

Eco Sensors Model C-30ZX

BAR GRAPH CALIBRATION

BAR GRAPH C-30Z	PPM OZONE
1st green	"on" indicator
2nd green	.02
3rd green	.03
4th green	.04
1st yellow	.05
2nd yellow	.07
3rd yellow	.08
1st red	.10
2nd red	.12
3rd red	.14

ALARM SET POINT ADJUSTMENT

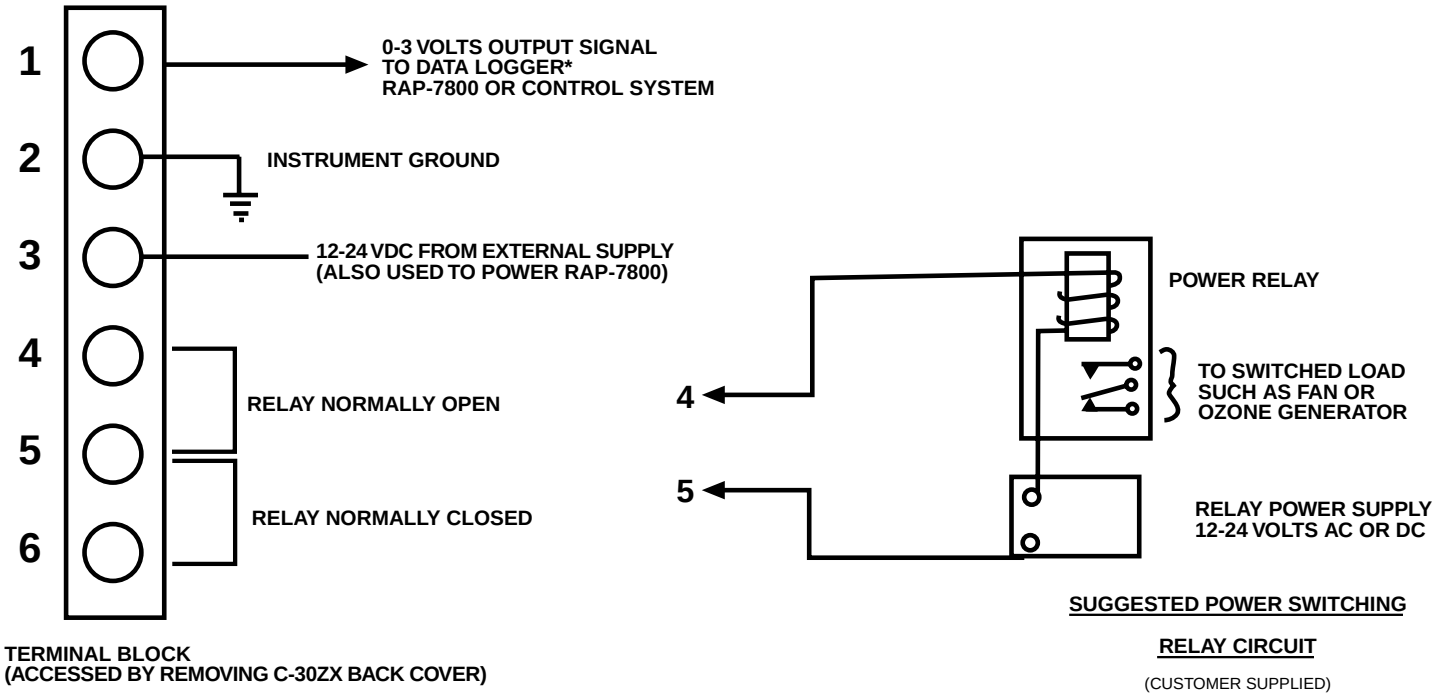
The set-point for the alarm and relay can be changed by opening the instrument case and locating the 8 toggle DIP switch near the sensor. The programming is:

Switch No.	PPM Ozone
1	.14
2	.12
3	.10 (standard setting)
4	.08
5	.07
6	.05
7	.04
8	.03

Please note that no more than one switch should be down (on) at a time.

Voltage Output: Linearly proportional to the Ozone Concentration with a scaling of 1 volt = .1ppm, 2 volt = .2ppm, etc.

WIRING TO THE C-30ZX



The C-30ZX internal relay is a low power device. It will handle up to 30 volts AC or DC at up to 1 amp so it will switch low voltage alarms directly. For switching power loads an intermediate relay and power supply should be used such as shown above.

***Note:** The Eco Sensors data logger is wired to plug into the jack on the bottom of the C-30ZX.

RECOMMENDED ACCESSORIES

OG-2 Ozone Source Calibrator Pocket-size battery-operated micro generator produces .1 ppm for calibration checking purposes.

EE-2 Environmental Enclosure For dust and water protection in industrial and agricultural environments and where the public may be near the instrument. 120 x 180 x 90 mm (5"x 7"x 3") with a clear polycarbonate gasket front cover.

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

RAP-7800 Remote Alarm Panel In rugged PVC enclosure. Feature 90 dB audio alarm, red alarm strobe light, 4- 20 mA analog signal loop (for building control systems), and digital readout.

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

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