

EcoLeak

Eco-6

Six Zone Panel



**INSTALLATION
&
OPERATION
MAINTENANCE
INSTRUCTIONS**



aquilar
leak detection solutions

Eco-6

Six Zone Panel

Please read these instructions carefully and keep them in a safe place (preferably close to the module) for future reference. These instructions must be followed carefully to ensure proper operation. Wiring of this alarm panel should be carried out by a suitably qualified technician in accordance with the applicable regulations and standards in the relevant industry/country. This manual is intended as a guide, and Aquilar Ltd bears no responsibility for damage or injury arising from incorrect installation of this and any supplementary equipment.

A. GENERAL INFORMATION

The Eco-6 alarm panel is designed for use with all AquiTron and TraceTek sensing cables and sensors for detection of water, acid, hydrocarbon liquids (fuels) and refrigerant gas leaks. Including built in battery back up as standard, while monitoring for both leak and cable break on up to six separate zones. The Eco-6 is a truly versatile leak alarm panel.

INSTALLATION ITEMS (NOT SUPPLIED)

- Wall fasteners for surface mounting (four screws)
- Rubber or elastomeric washers to seal at mounting points

TOOLS REQUIRED

- Drill or hole punch for electrical conduit entries
- Phillips (cross-head) screwdriver
- Small flat-head screwdriver

STORAGE

Keep the module in a dry place prior to installation to avoid possible damage to internal components.

B. PRODUCT INFORMATION

ECO-6

100 to 240 Vac, 50-60 Hz,

POWER CONSUMPTION

5 watts

RELAYS

Number: Two for leak relay and one for cable break / power failure.

Type: SPDT

Rating: 3 A at 250Vac/24 Vdc

SENSING CABLE COMPATIBILITY

All EcoLeak and TraceTek sensing cable (TT1000, 1100, 3000, 5000, series)

PROBE COMPATABILITY

All EcoLeak, Aquitron Probes

DETECTION PROBES

1 x EL-MPS-R or 4 x AT-PROBE per zone

MAXIMUM LENGTH OF SENSING CABLE

30 metres per zone

MAXIMUM LENGTH OF LEADER CABLE

300 metres per zone

NUMBER OF ZONES

6

SENSING CIRCUIT

2 and 4 wire sensing

CABLE ENTRY

20mm dia, 6 along the bottom, 8 on the back, 1 on right side. Appropriate stuffing glands should be used.

DIMENSIONS AND WEIGHT

226 x 206 x 70, WxHxD. 1.85kg

WORKING TEMPERATURE RANGE

5°C to 40°C

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ENCLOSURE

Powder coated steel, colour RAL 9006 matt, lockable, IP43 - Indoor use only

WORKING HUMIDITY RANGE

5% to 80% non-condensing

STATUS LED

Power Mains-Green, Leak-Red, Cable break-Yellow

AUDIBLE ALARM

90dB at 10cm

BATTERY BACK-UP

24 hours, integral 6Vdc, 1850mA battery

APPROVALS

BS EN 61000-6-1 2007 Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments.

BS EN 61000-6-3 Electromagnetic compatibility (EMC) Generic standards. Emission standard for residential, commercial and light-industrial environments.

2006/95/EC The Low Voltage Directive

2004/108/EC The Electromagnetic Compatibility Directive

2011/65/EU The Restriction of Hazardous Substances Directive

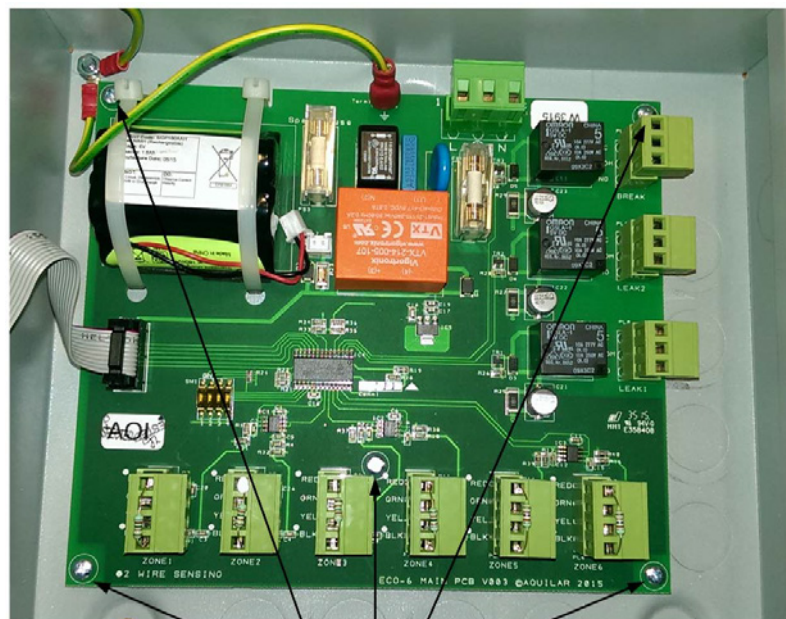
C.ALARM PANEL MOUNTING

The Eco-6 leak alarm panel should be mounted on an internal flat surface away from direct contact with water. 3 x fixing holes are provided along with several 20mm diameter knockouts. To access the fixing holes it is recommended the circuit board is removed prior to mounting and any holes knocked out/drilled for conduit being fitted. To remove the circuit board the door board ribbon cable connector and earth bond lug should be carefully unplugged from the circuit board first.



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Remove the five fixing screws retaining the board. Carefully remove the circuit board and keep safe. Once the enclosure has been fixed, refit circuit board taking care not to overtighten screws. The earth lug and door board ribbon cable must also be refitted for correct operation of this device.

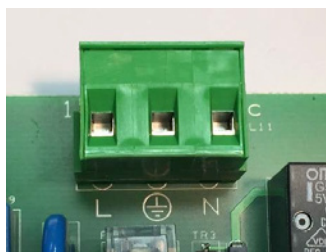


5 x Fixing Screws

D. MAINS POWER AND BATTERY CONNECTION

It is recommended this alarm panel should be connected to 230Vac mains power via an un-switched 3A fused spur. The panel has the capability to be connected to 110 – 240Vac.

Warning Shock Hazard. Exposed Circuitry within! It is strongly recommended the power is isolated before opening the control panel lid and carrying out any work within the unit.



This alarm panel **MUST** be earthed.

Mains power must be isolated prior to any connection being made or altered.



Ensure the battery pack is plugged in. Allow 24 hours for full charge. While the panel is in use this should be left connected at all times.

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E. IMPORTANT SENSOR INFORMATION

TWO WIRE SENSING: ECOLEAK SENSING CABLE, ECOLEAK PROBES

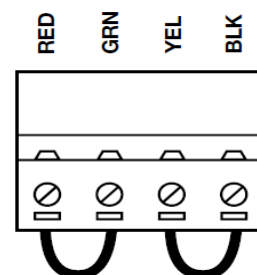
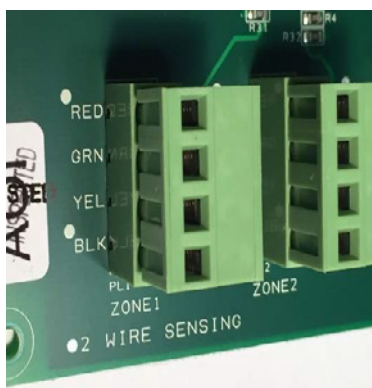
Two wire systems should be connected using the red-black outer terminals only. As indicated by the white dots. Use only Aquilar EcoLeak cable or Aquilar probes for two wire sensing. Use of other sensing devices could cause the panel to malfunction.

EcoLeak sensing cable is not extendable. If sensing is required in more than one area on each zone, TT1000 should be used with AT-MJC/AT-BJC jumper cable between the sensing areas (up to a maximum of 30m total sensing cable per zone).

FOUR WIRE SENSING: TT1000, TT1100, TT5000, AT-PROBE ETC.

When using four wire system with Aquilar AT-MLC leader cable or AT-BJC jumper cable the red-green and yellow-black colour coding on the zone sensor input terminals should be observed.

NOTE: Do not connect more than one sensing circuit into the Eco-6. Doing so will cause malfunction in the cable break checking system and may prevent the panel from detecting cable faults and leaks.



Any unused zones must be linked out at the panel as shown, or an 82KΩ resistor fitted between the dotted terminals (red and black). Failure to do this will cause the panel to show a cable fault on that zone.

F. RELAY CONNECTIONS

Three volt free relays are available for connection to external equipment. The relays have common, normally open and normally closed contacts. All relays are volt free contacts. No power is available from them. If using them to control equipment that requires power, an external power source must be supplied (by others) and the relay used as a switch. Please see relay connection addendum at the end of this manual for further connection guidance. The relays are rated for a maximum load of 5A 250V. Exceeding this may cause irreparable damage to the alarm panel.



Warning Shock Hazard! Caution 230V mains voltage could be present at these relays that may require isolation elsewhere.

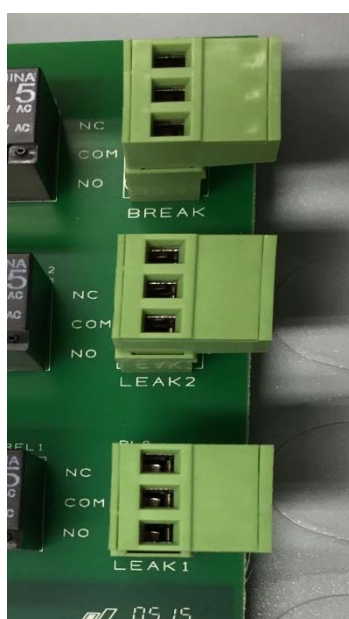
Leak 1 and Leak 2 relays both operate when a leak is detected within any of the six zones and the leak alarm is in operation.

The break relay operates when a cable break is detected on any of the six zones or power is lost to the panel. (Note: if the integral battery pack is plugged in and charged the system will continue to monitor for leaks and cable break for a minimum 24hrs until the backup battery discharges).

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All relays will only reset when the leak/fault has been rectified and the reset button is operated. Mute has no effect on relay output.

IMPORTANT! Relay output terminals refer to the panel in its 'off' state. The Break/Fault relay is energized when the panel is mains powered. Once power is applied to the panel the normally open and closed terminals are reversed.



G. NORMAL OPERATION

After connections are complete, supply power to the unit. If the sensing circuit is complete and free of leaks or other problems, the panel will run a function test and then the green mains power LED only will remain illuminated.

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Testing the alarm panel after supplying power and Routine maintenance procedure:

- When power is supplied, the GREEN LED illuminates for mains power.
- Place water or a mapping tool on the probe or sensing cable and the Eco-1 panel should report an alarm condition. For the TraceTek TT5000 systems, simulate a leak condition by tightly bending and holding the sensor cable. Please refer to relevant TraceTek datasheet.
- Verify that the RED alarm LED is illuminated.
- Confirm the Leak relay operates.
- The buzzer will sound and will only be silenced when the mute button is pressed or system is reset. Reset is only possible once the probe or sensing cables are dried.
- To test the fault alarm operation disconnect the probe or sensing cable from the leader/jumper cable. The Eco-6 panel will report a fault alarm.
- Verify the YELLOW alarm LED is illuminated
- Confirm fault relay operates.
- Buzzer mute and reset in same method as for a leak alarm. Reset is only possible once the fault has been repaired.
- Turn off mains power (after allowing sufficient time for battery charge). Green power light will go out, Red battery
- LED will illuminate to indicate panel is running on battery power. If battery LED is flashing or does not illuminate battery power is too low for proper operation and will require further charging.
- While on battery power ensure leak and fault functions operate correctly.

If the Eco-6 unit still does not appear to operate properly contact your supplier for assistance.

H. RESETTING THE UNIT

When the probe or sensing cables are dried or repaired press the reset button. The unit is designed so an alarm can be muted, but the panel cannot be reset until the leak or fault has been rectified. If auto reset is enabled the system will still not reset until the leak/fault has been rectified.

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I. CLEANING THE UNIT

If it is necessary to clean the outside surface, use a dry cloth or sponge. Do not use solvents or abrasive cleaners. Do not open the enclosure if it is wet (risk of electrical shock).

J. FUSE REPLACEMENT

The panel's main input is protected by a T500mA, 250-V fuse. Use no other type of fuse or the Eco-6 panel could be damaged or could fail to perform properly.



Warning Shock Hazard. Exposed Circuitry within! It is strongly recommended the power is isolated before carrying out any work within the unit.

K. STORAGE AND HANDLING OF SENSING CABLE

Despite their rugged construction, EcoLeak and TraceTek sensing cables must be handled in a manner appropriate for a sensing device or they may be damaged and require replacement. Therefore, you should follow some basic rules for storing and handling all sensing cables:

- Store spare cable in its original packaging or container in a clean, dry place until ready for installation.
- Schedule cable and probe/sensor installation after all mechanical, plumbing, and electrical work has been completed
- Clean the area where the cable is to be installed, and remove any obvious debris or other sources of contamination.
- Do not solder or weld near the cable without providing protection from heat, solder flux, or weld splatter.
- Do not drop tools or floor tiles on the cable; sharp and heavy objects may damage the cable.
- Avoid walking or stepping on the cable. Provide shielding (for example, a half shell

- of plastic pipe or upturned cable tray) where additional protection is necessary.
- Do not use insulation tape or similar to secure sensing cable (some tapes and adhesives absorb moisture) or use solvents that could eventually cause an alarm.
- Do not drag sensing cable through contaminants (such as pipe flux, PVC cement, solvents, oil, water or dirt)

L. NOTE ON CABLE CLEANING

EcoLeak and TraceTek sensing cables use a solid core polymer construction and can usually be easily cleaned with tap water. In extreme cases or when large amounts of cable are contaminated, either cable can be washed in a dishwasher. Try a water only (no detergent) cycle first and avoid the heated dry cycle. When placing the cable in the dishwasher be sure to keep water out of the connectors (TraceTek cable ends can be connected together for convenience). The TraceTek TT5000 sensing cables cannot be cleaned and must be replaced after exposure to fuel or solvent.

K. FINAL COMMISSIONING CHECK LIST

1. Complete a system inspection in the presence of the owner.
2. Ensure a plan showing the location of the zone and sensor is available.
3. Check that the following information is clearly visible adjacent to the alarm module:
 - "In case of alarm" instruction.
 - Location of the system "as fitted drawing" in case it is not installed adjacent to the alarm module.
 - Name and contact number of the person responsible for operating the system
 - Supplier's contact name and address.
 Or details of the installation/maintenance company.
4. Hand over these Installation, Operating and Maintenance Instructions.

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5. Make the owner aware that it is strongly recommended to perform a systems check at regular intervals, as a minimum once every 12 months.

M. ROUTINE MAINTENANCE AND TESTING

Perform a functional check per the following procedure as a minimum of 12-month intervals. Repair or replace all damaged wiring, probes and sensor cables. Such a check will identify conditions that adversely affect the capability of the system. More frequent checks may be required if the sensing cable is repeatedly exposed to leaks, or if construction or repair work is done where the sensing cable or probes may be exposed. Apart from fuse replacement there

are no field repair procedures for the Eco-6 panel. If the module fails to perform the functional tests it must be returned to your supplier for repair or replacement.

Contact your local EcoLeak representative for further information on service and maintenance support.

N. ROUTINE TEST PROCEDURE:

- Should be carried out as initial setup procedure as set out above.
- **Important Note:** This may cause external equipment to shut down or go into alarm if devices are connected to the leak and fault relay contacts.

N. TROUBLESHOOTING

POWER

Problem:

Green mains power LED Does not illuminate

Possible Cause:

No power to alarm panel. Mains or internal fuse blown.

Action:

Check 3A fuse within spur, replace if necessary. Verify mains power present at mains terminals of panel. Check internal T500mA fuse, replace if necessary. If panel remains inoperative please contact supplier.

Problem:

Red battery power LED does not illuminate, or flashing when mains power removed.

Possible Cause:

Battery pack not plugged in. Battery not charged

Action:

Plug battery pack into connector PL7 and leave with mains power on for minimum 24hrs.

Problem:

Red battery power LED fails to illuminate or continues to flash after 24hrs charging.

Possible Cause:

Faulty battery pack.

Action: Contact supplier for replacement.

Problem:

Eco-6 will not power after a power failure and the battery has been depleted.

Possible Cause:

Eco-6 Power procedure required.

Action:

Disconnect 230Vac Power, disconnect battery from motherboard (by disconnecting the battery plug), Power the ECO-6 with 230Vac, reconnect the battery to the mother board.

RELAY OUTPUTS

Problem:

No power from the relay

Possible Cause:

Relays are volt free contacts. No power is available from them.

Action:

Rewire to use relay as a switch from an external power source. Please see relay connection addendum.

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Problem:

Solenoid valve opening when expected to be closed (or vica versa), or other connected equipment behaving in the opposite manner to required. Paying particular attention to the break/fault relay as it is energized when the alarm is powered.

Possible Cause:

Cable is pinched (all cables).

Action:

Use other terminal. Please see relay connection addendum.

WATER SENSING

Problem:

Leak Alarm, but no leak is found.

Possible Cause:

Sensing cable is dirty or contaminated.

Action:

Clean cable using water (no solvents, acetone, white spirit or turps). Dry the cable and check Eco-Leak front panel. Heavily contaminated cable may require replacement. But if dirt is accumulating, cleaning and/or replacement will eventually be required.

Problem:

Leak Alarm, but no leak is found.

Possible Cause:

Sensing cable is exposed to occasional water spraying.

Action:

It is best to keep the sensor cable at least 1 meter (3 feet) from the airflow of any air conditioning units, or areas where occasional wetting of the sensor could be expected.

Problem:

Leak Alarm, but no leak is found.

Possible Cause:

Cable is in contact with sharp metal edges.

Action:

Check the sensor cable for possible points of contact with sharp edges such as the edges of drip trays or the pipe threads on adjustable floor supports trunking and ducting. Reposition the cable as necessary or insert a

small piece of insulating material to prevent the cable from making contact with the metal edge.

FUEL OIL SENSING

Problem:

Leak Alarm, but no leak is found.

Possible Cause:

Cable is pinched (TT5000 cable)

Action:

Check the sensor cable for possible pinch points. TT5000 can indicate a leak if tightly bent or compressed by a heavy object

Problem:

Leak Alarm.

Possible Cause:

Probe or sensing cable is contaminated (TT5000 cable)

Action:

Locate the spill area, investigate the cause of the spill and take necessary repair actions. Clean up in the spill area and clean and dry the probe, if necessary. Any TT5000 cable contaminated with hydrocarbons (oil, fuel etc.) will need to be replaced, it cannot be cleaned and re-used. Leak LED will turn off when cable/probe is replaced/dried and reset button is pressed.

FAULT ALARM

Problem:

Fault output to BMS but no fault indicated on zones (Battery LED illuminated).

Possible Cause:

Mains power lost to panel.

Action:

Check mains power is connected and turned on. Check fuses. Test and replace as necessary.

Problem:

Fault indicated, but no obvious fault found.

Possible Cause:

Loose connection on sensing circuit.

Action:

Check all connections are sufficiently tightened within the alarm panel, connectors

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are fully pressed home, and any modular connectors are fully tightened. If using TT1000 sensing cable or AT-PROBE-M ensure the TT-MET-PC end termination is fitted properly on the end of line. If using AT-PROBE-TS ensure the last probe has end of line terminations (cable loops) fitted.

Problem:

Fault indicated, but no obvious fault found.

Possible Cause:

Sensing cable or probe faulty or damaged.

Action:

Check sensors for damage, test and replace as necessary.

Problem:

Fault indicated, but no obvious fault found.

Possible Cause:

Short to earth on sensing circuit.

Action:

Check sensing cables or probes are not earthed. Pins on probes should be positioned not touching metal surfaces. Sensing cable not positioned running over sharp metal surfaces (drip tray edges, false floor support pedestals etc.)

Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Aquilar Limited makes no warranty as to the accuracy or completeness of the information, and disclaims any liability regarding its use. The only obligations of Aquilar Limited are those in the Aquilar Standard Terms and Conditions of Sale for this product, and in no case will Aquilar Limited be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use or misuse of the product. Specifications are subject to change without notice. In addition, Aquilar Limited reserves the right to make changes – without notification to Buyer – to processing or materials that do not affect compliance with any applicable specification.

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