EcoLeak | Eco-1

Single Zone Panel

INSTALLATION INSTRUCTIONS

aquilar
leak detection solutions

Eco-1
Single 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-1 leak detection 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. The Eco-1 single zone alarm panel now incorporates fault/cable break monitoring for added protection and peace of mind.

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-1

100 to 240 Vac, 50-60 Hz,

POWER CONSUMPTION

3 watts

RELAYS

Number: One LEAK relay and one of cable *Common - break / power failure.
Type: SPDT
Rating: 3 A at 250Vac/24 Vdc

SENSING CABLE COMPATIBILITY

All Eco-Leak 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

* Jumper Selectable

MAXIMUM LENGTH OF SENSING CABLE

30 metres

MAXIMUM LENGTH OF LEADER CABLE

300 metres

NUMBER OF ZONES

1

SENSING CIRCUIT

2 and 4 wire sensing

CABLE ENTRY

Entry holes to be user drilled. Appropriate stuffing glands should be used

DIMENSIONS AND WEIGHT

130 x 130 x 60, WxHxD. 0.40kg

WORKING TEMPERATURE RANGE

5°C to 40°C

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WORKING HUMIDITY RANGE

5% to 80% non-condensing

STATUS LED

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

AUDIBLE ALARM

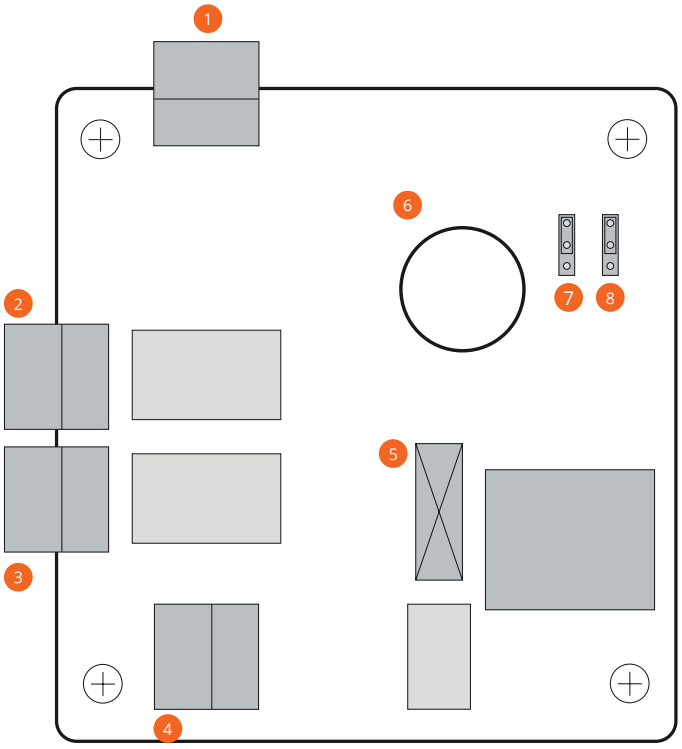
90dB at 10cm

APPROVALS CE

BS EN 61326-1 2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements Group 1, Class B equipment - (emissions section only)

Part 1: General requirements Industrial Environment - (immunity section only)

CFR 47 Pt 15 B Class A Code of Federal Regulations: Pt 15 Subpart B- Radio Frequency Devices - Unintentional Radiators



1. 2 / 4 Wire Sensing cable plug and socket
2. Volt Free Leak relay cable plug and socket
3. Volt Free Common / Fault relay cable plug and socket
4. Power Cable Terminal Block (Mains In)
5. T500mA 250V Fuse
6. Buzzer
7. Common Relay Jumper
8. Auto Reset Jumper

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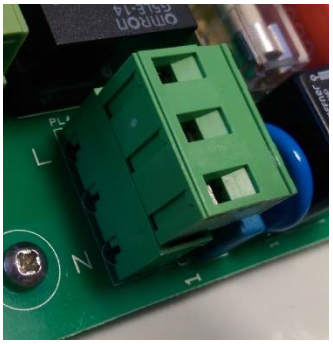
C. ALARM PANEL

The Eco-1 leak alarm panel should be mounted on an internal flat surface away from direct contact with water. 4 x fixing holes are provided. To retain IP rating the provided fixing holes must be used along with appropriate stuffing glands. To access the fixing holes the lid should be completely removed. When making off cables for termination, sufficient length should be left to allow removal and easy access to the electronics mounted on the lid.

D. MAINS POWER 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 100 – 240Vac.



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

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.

E. IMPORTANT SENSOR INFORMATION

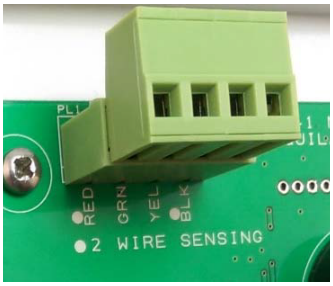
TWO WIRE SENSING: ECOLEAK SENSING CABLE, ECOLEAK PROBES

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

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-1. Doing so will cause malfunction in the cable break checking system and may prevent the panel from detecting cable faults and leaks.



EcoLeak cable is not extendable. If separate sensing areas are required TT1000 should be used with AT-MJC/AT-BJC jumper cable between the sensing areas (up to a maximum of 30m total sensing cable).

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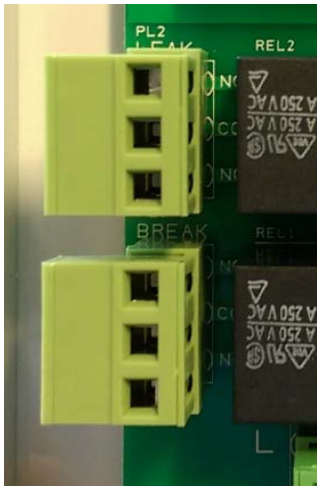
F. RELAY CONNECTIONS

Two 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 230Vac/24Vdc. 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.

The leak relay operates when a leak is detected and the leak alarm is in operation. The common relay operates when a leak or, cable break is detected or power is lost to the panel.
IMPORTANT! Relay output terminals refer to the panel in its 'off' state. The Common relay is energized when the panel is powered. Once power is applied to the panel the normally open and closed terminals are reversed.

Eco-1 alarm panels are user configurable to automatically reset alarm and relay outputs. By default relays will only reset when the leak/fault has been rectified and the reset button is operated. By enabling link PL5 the panel can be set to automatically reset once the leak or fault has cleared.

IMPORTANT! If this jumper position is changed the panel's power must be reset by turning off then back on for the change to become operational.

Muting the alarm has no effect on relay output.

G. FAULT/COMMON RELAY JUMPER

This jumper changes the function of the Break Relay. Default function is to operate on cable break fault alarm only. Moving the relevant jumper will change it's function to 'common relay'. This means that the relay will activate with both Leak and Fault alarms.

 unlinked

Relay functions as a fault relay

 linked

Relay functions as a common relay

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H. 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.

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 and Common relays both operate.
- 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-1 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.

If the Eco-1 unit still does not appear to operate properly contact your supplier for assistance.

I. 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.

J. 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).

K. FUSE REPLACEMENT

The panels mains input is protected by a T500mA, 250-V fuse. Use no other type of fuse or the Eco-1 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.

L. 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.

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- 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)

M. 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.

N. 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.
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.

O. 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-1 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.

P. 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 common relay contacts.

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Q. 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.

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.

Problem:
Leak Alarm, but no leak is found.
Possible Cause:
Cable is in contact with sharp metal edges (TT1000, TT3000)
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.

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 common relay as it is energized when the alarm is powered.
Possible Cause:
Relay is wired incorrectly.
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 EcoLeak 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.

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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 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 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.)

Problem:
Fault indicated at BMS, but no obvious fault found.
Possible Cause:
No power to the alarm panel.
Action:
Check power is connected and turned on. Check fuses. Check mains cable is correctly terminated.

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