

IQ Eco+logic Heat pumps Guide notes for engineers

AL19 Alarms

AL 19 is a refrigerant over pressure alarm. Refrigerant over pressure is typically caused by over heated refrigerant which expands and results in increased pressure.

In our heat pumps the alarm AL19 is a final alarm that requires a manual re set by the user/engineer. Before AL19 is presented High pressure alarm AL02 (*which is an automatically re setting version of the same alarm*) must present and self re set more than 6 times in a 24 hour period.

Typical causes

AL19 can present for a number of reasons. Here are the primary examples loosely in order of likelihood.

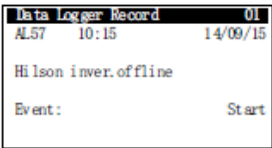
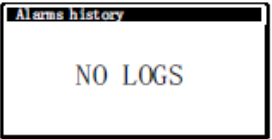
1. In heating only systems AL19 will present if the HP control is set for Heating and Hot water. The Hot water option must be disabled in the engineer parameters by Setting SF05 to NO
If it is not disabled, the DHW cylinder sensor probe which is prewired inside the HP will be active and will call for DHW. Because it is in free space sensing ambient Air, the HP will ramp up believing it is not heating fast enough and though the output produced will be delivered to the heating the output temperature will continue to rise perhaps also presenting AL05 (overheat) auto re setting alarms, as well as AL02 resulting in AL19.
2. The systems three port motorised valve has been fitted with the outlets reversed.
In this instance the HP is actually heating the system when it believes it is heating the DHW. Thus the DHW sensor sees no change and continually ramps up the compressor output.
(Banico branded three port valves, should be installed, with port AB as the input Port A to the DHW and Port B to the heating system. Note; this may not be the same for other valve brands.
3. When AL19 presents during commissioning or within a few days after, this can be due to partial Air locks within the Heat pump or in the primary flow & return connected to it. It is usually self correcting as this air is drawn to AAV's though can require intervention in systems where Air locks in the F/R are troublesome.
A partial air lock will allow water to circulate, the HP appears to work as required, but with reduced volume passing over the HPs plate heat exchanger. The refrigerant Heat transfer to the system is inadequate, refrigerant temperature builds up and pressure rises.
If this is the cause AL02/AL19 will occur in both heating and hot water modes.

Potential causes 1-3 above are the most likely issues causing AL19, especially in new or recent installations, though there could be other less likely issues including 4-11 over on the next page.

4. The DHW sensor is either placed in the wrong location or it is making poor contact giving an incorrect lower reading. *If this is the case the HP may be ramping output to satisfy a false demand this can then result in overheat then pressure and AL19.*
5. The systems Hot water parameters are incorrectly set to suit the particular system. Review / adjust
6. The coil in the cylinder is way too small and does not provide enough surface area.

When this is the case there is inadequate transfer of heat through the coil the return then comes back with a too quickly rising temperature rate and the HP PID control system is unable to modulate quickly enough to mitigate it by reducing output, hence the outlet temp reaches overheat repeatedly until this results in expansion and AL19. If the cylinder came from us, with the HP this will not be the case.

7. One of the appliances NTC sensors is faulty, damaged or reading incorrectly.
8. Undersized Flow and return pipework which can have a similar effect to that of a partial air lock reducing flow across the HP.
For AW10V and AW15V HPs the F/R system to the Hydraulic separator, system or buffer tank should be run in 32mm multilayer. And as a rule, formed bends are preferable when possible as bends are less restrictive.
9. Debris restricting flow through a Y strainer in an existing system. “unlikely, but potentially”
10. Over filling of refrigerant. Note; this is extremely unlikely ex the factory. It is more a potential after a gas re charge.
11. These appliances are factory programmed using computer input programming.
It is extremely unlikely that a factory parameter is incorrect though there is a small potential for poor connection issues to result in anomalies.

Display	Procedures
Press <Prg> button , then then press down button to Alarm Logs, press <Enter> to confirm.	
	Press <up> or <down> to view other alarms
	If no alarm is generated, the word "No alarm!" will be displayed.

To view the alarm logger

For your guidance, you may also experience auto re setting AL05 alarms when experiencing repeated instances of AL19. AL05 is an auto re setting alarm and is providing water outlet over temperature protection. It is associated.

For further guidance also consult the appliance manual.