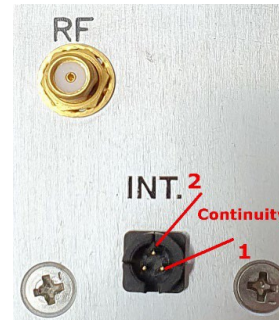


AN0725

Resetting the AO Thermal interlock switch.

Water cooled AO Devices and RF Drivers are often fitted with thermostatic interlock switches. These switch to an open circuit when the threshold or trip temperature has been exceeded.

You can check if the thermal interlock is OK on the AO device (NOT the driver) by measuring continuity between pins 1 and 2 of the INT connector.
It should read ~zero ohms.



Over temperature switch trip point.

Nominal trip temperature +/- 5°C

Fused silica and Quartz AO devices	:	40°C
Germanium and smaller Quartz AO devices	:	32°C
High-power RF drivers	:	50°C

Refer to the device test data sheet for specific value.

In all cases the switching hysteresis is 7-10deg C. Therefore, it is necessary to reduce the coolant temperature at least 10degC below the nominal over-temperature trip point to reset the thermal switches. (re-make to a closed circuit).

e.g. for Germanium reduce to 20degC and for quartz, reduce to 30degC.

In hot and humid climates, the thermal interlock may switch to open circuit because the unit has been stored or operated at high temperature.

Recommended operating temperatures

- less than 23degC for Germanium AO devices.
- less than 27degC for Quartz AO devices.

Primarily, liquid cooling is required due to the RF drive power dissipation in the AO device. It is NOT related to the applied optical power.

Application Note



Fault Condition Reset

If the recirculating chiller temperature cannot be reduced sufficiently to overcome the thermostatic switch hysteresis, it is possible to reset the switch using one of two methods:

1: Freezer aerosol spray.

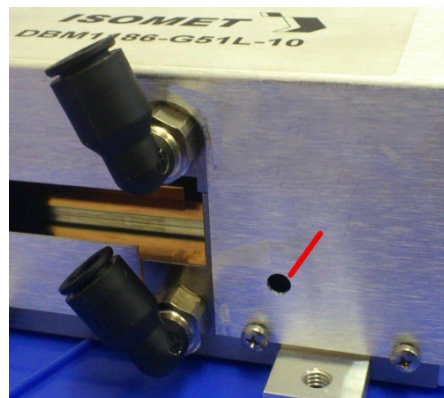
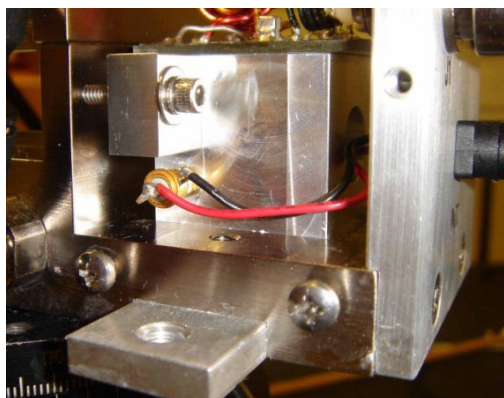
Carefully remove the AO cover. The switch is shown in the picture. The location will depend on the AO model. Apply freezer spray to the gold body of thermostatic switch.

- **DO NOT** get freezer spray on the optic surfaces.

Some models have access hole in the cover. The switch is located immediately behind this hole.

“Gold” thermostatic switch.
(Shown here with red and black wires)

Cover access hole
(Indicated by red line)



2: Cool in a domestic refrigerator

Place the AO device in a sealed plastic bag and then place in a domestic refrigerator for about one hour.

- DO NOT freeze.
- DO NOT allow condensation to form
- Avoid thermal shocks.

CAUTION

In all cases allow the AO device to return to room temperature before applying RF power.

When operating the AO device(s), please ensure that you have good coolant flow through the entire circuit. Recommended flow rate >2 litres/minute.