DEBUNCHER COOLING CRYO INTERLOCK BOX

The cryogenically cooled amplifiers for the debuncher stochastic cooling system require an interlock system that will turn off the amplifiers if the temperature begins to rise from liquid helium temperature. The amplifiers are sensitive to the transition temperature at liquid nitrogen temperature and will be damaged if they are not turned off before warming to liquid nitrogen temperature. The amplifiers are set to trip when the temperature is >40 deg. K.

The thermometry is achieved by using the backup carbon resistors for cooling tanks #D104, #D105, and #D106 on the upstream side and tanks #D601, #D602, #D603 on the downstream side.

There are two interlock boxes located in the AP-10 control room in relay rack A14R07 in the lower left corner of the relay rack. One interlock box is dedicated to the upstream amps and one for the downstream amps.

The carbon resistor device names are as follows:

D:P1TRT1	TANK #D106	TEMP
D:P1TRT2	TANK #D105	TEMP
D:P1TRT3	TANK #D104	TEMP
D:P1TRT5	TANK #D601	TEMP
D:P1TRT6	TANK #D602	TEMP
D:P1TRT7	TANK #D603	TEMP

The above resistors are inputs to the interlock boxes with the three upstream resistors as inputs to the upstream box and the three downstream resistors as inputs to the downstream box. If the three resistors for a particular box are at the trip point then the interlock box will turn off the respective amplifiers. Once the cryo system has recovered and the temperature is below the trip point, the interlock box can be reset and the amps turned on. The reset device names are D:CRYOUS and D:CRYODS and can be reset from a parameter page or reset locally.