1000 SERIES CRYOSTREAM – ELECTRICAL PIN OUTS

INTRODUCTION

This tech note describes the procedure for checking the resistances of the sensors and heaters in 1000 series Cryostream coldhead. It also shows how to check for leakage to earth in the coldhead.

The procedure should be carried out using an appropriate Ohmmeter (or Digital Multimeter).

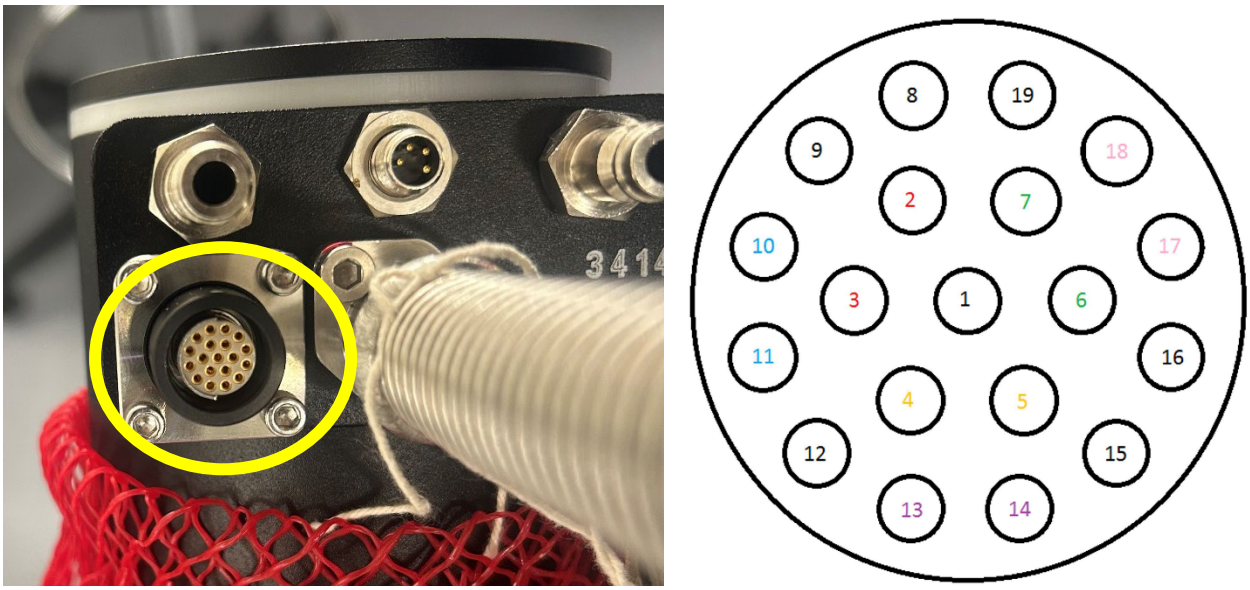

Figure 1 – 1000 Series Coldhead Pinouts

1. With reference to Figure 1, and using the resistance range of the Digital Multimeter, check the resistance of the heaters and sensors components between their **Pin Pairs**. The **Expected Values** are indicated below and are shown for a Cryostream coldhead at room temperature. These values will be different if the coldhead is cold. It is recommended that the coldhead is allowed to warm up, first.

Note: If recently run, the coldhead can take several hours to reach room temperature.

Component	1000 Series Connections	Expected Value (Ω)	Measured Value (Ω)
SUCT Heater	2 and 3	10	
Evap Heater	4 and 5	22	
Gas Heater	6 and 7	20.4	
SUCT Sensor*	10 and 11	Stan. 109	
		Plus 159	
Evap Sensor	13 and 14	109	
Gas Sensor	17 and 18	110	

*A 50 Ω resistor is added to the SUCT Sensor in the Cryostream Plus and Cryostream Compact Models.

2. To check for connections to the earth, measure the resistance between each pin/connection and an exposed screw on the body of the coldhead; each pin should have a resistance of >20 MΩ (or the highest reading on your Ohmmeter if it does not read this high).

3. If no faults are found in the coldhead it is recommended that the cable is checked too. Plug the coldhead cable into the coldhead, and check the resistances of the heaters and sensors through the cable, to ensure there are no faults in the cable (see Figure 3).

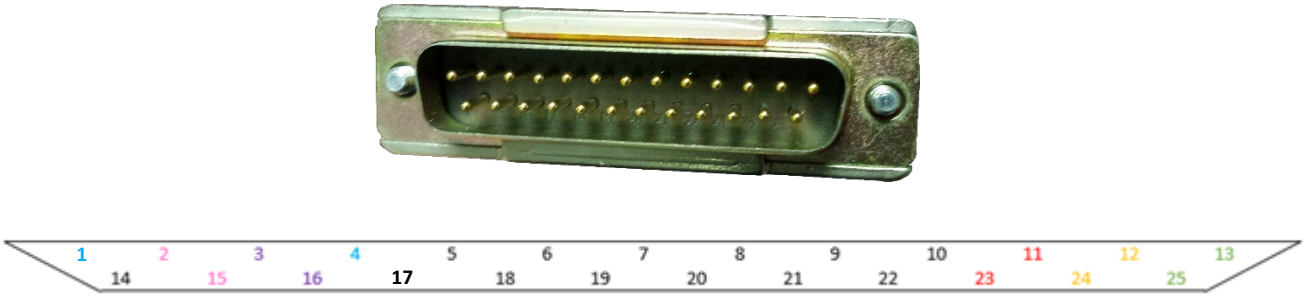

Figure 2- Picture and diagram of controller end of controller-to-coldhead cable

Component	Pin Pair	Expected Value (Ω)	Measured Value (Ω)
SUCT HEATER	11 and 23	10	
EVAP HEATER	12 and 24	22	
GAS HEATER	13 and 25	20.4	
SUCT SENSOR*	1 and 4	Standard 109	
		Plus 159	
EVAP SENSOR	3 and 16	109	
GAS SENSOR	2 and 15	110	

*A 50 Ω resistor is added to the SUCT Sensor in the Cryostream Plus and Cryostream Compact Models.