IGOL

<u>LNN-101 Operators Notes</u>

1.   General.

The LNN-101 liquid nitrogen controller allows convenient control of a vacuum coating plant meissner coil.

This document summarises the LNN-101 operation.

2.   Operating Modes.

The LNN-101 has two operating modes, Normal and Program. The PROG button is used to toggle between the two modes.

3.   Normal Operating Mode.

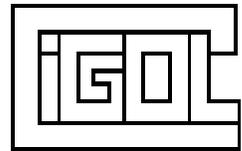In the Normal mode the left hand LED is off and the left hand digit is blank.

The display indicates the measured temperature in °C.

The right hand LED indicates the state of controller as follows.

3.1.	LED = Off	Meissner coil is off
3.2.	LED = On	Meissner coil is being cooled
3.3.	LED = Fast flash	Meissner coil is being warmed - not yet ready for venting
3.4.	LED = Slow flash	Meissner coil is being warmed - system is ready for venting

The push buttons are used as follows.

3.5.	OFF/STEP	Turn off meissner coil (stops liquid N_2 and / or warming)
3.6.	WARM/UP	Start meissner warming by compressed air.
3.7.	COOL/DOWN	Start meissner cooling using liquid N_2
3.8.	PROG	Change to Program mode

4.   **Program Operating Mode.**

In the Program mode the left hand LED flashes and the left hand digit shows either an upper or lower horizontal bar according to which set point is being adjusted.

The display indicates one of the two programmable set point temperatures in °C. The cold set point is the value at which the liquid N_2 valve is de-energised. This is indicated by the lower bar on the left hand digit. The warm set point is the value at which the liquid N_2 valve is re-energised as the meissner coil starts to warm up. The LNN-101 does not allow the warm set point to be set to a value less than or equal to that set for the cold set point.

The push buttons are used as follows.

4.1   OFF/STEP   Change to other set point

4.2   WARM/UP   Increase value of set point

4.3   COOL/DOWN   Decrease value of set point

4.4   PROG   Change back to Normal mode