Technical Notes

FREEZE CONTROL®

FREEZE CONTROL® System

FREEZE CONTROL® systems are controlled rate, liquid nitrogen freezers designed for cryopreservation of biological specimens. Essential parts of the freezing system include a temperature controller, a cryochamber, and a cryobath.

The temperature controller monitors and regulates the temperature of the specimens. The specimens are all held at a highly uniform temperature inside the cryochamber. The cryochamber is connected to the controller via the cryochamber socket at the back of the controller. The cryochamber stands in liquid nitrogen in the cryobath which is a container specially designed to hold liquid nitrogen.

An Internal Protocol stored on a memory chip inside the controller (**CL8800, CL5500 & CL2200**) can be selected, or the controller (**CL8800 & CL3300**) can be connected to a computer and CryoGenesis™ software can be used, to run temperature protocols.

Customisation

FREEZE CONTROL® systems are modular and parts are interchangeable. Users may select from a range of controllers and cryochambers to configure a system which best suits their specific requirements. Our CL-P10 external power pack allows the freezers to be operated away from mains power. Our TL-13 temperature logger provides data acquisition facilities for real-time temperature logging to help you achieve quality control.

Key Facts for Operating FREEZE CONTROL® Systems

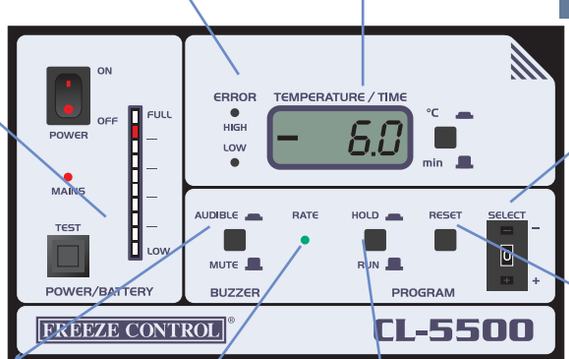
- Ensure that the cryochamber always sits in at least 10 mm of liquid nitrogen while in use.
- Allow the cryochamber to equilibrate in liquid nitrogen at the starting temperature of the selected protocol for a few minutes before specimens are loaded.
- Ensure that the cryobath and cryochamber are covered with their lids to minimise build up of condensation and frost inside the cryochamber

Simple Operater Interface

Control Warning Indicators
Warns if cryochamber temperature is different from the protocol set temperatures.
High and *Low* indicate that the cryochamber temperature is ±1.5°C above or below the protocol set temperature.

Main Display
Choice of displaying cryochamber temperature or the amount of time the protocol has elapsed.
The setting of this switch may be changed at any time during controller use without affecting program operation.

In-Built Battery Pack
Indicators that show the operation of the internal battery. Present only in ***CL5500*** temperature controller.



Selection of Individual protocols
Preset in the internal memory chip.
Advance or reverse through the selections.
Protocols are labelled 0 to 9, and A to F.

Audible /Mute Buzzer
A push button to enable/disable the warning buzzer.
An audible signal is produced if Control Warning Indicator *High* or *Low* is lit.

Reset
Resets a temperature protocol to the start.

Status Indications
Run-Temperature Protocol executing.
Hold-Temperature Protocol holding at a set temperature, will resume executing from the point at which it was halted when switched to *Run*.

Rate Indicator
A green LED turns on and off regularly to indicate program is progressing.

For further information Contact CryoLogic
www.cryologic.com
enquiry@cryologic.com
Tel: 61 3 9574 7200
Fax: 61 3 9574 7300

CryoLogic
Innovative Instrumentation for Medicine & Life Sciences

Technical Notes

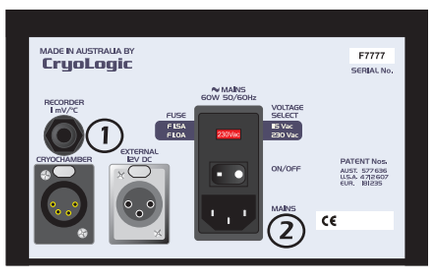
FREEZE CONTROL®

Simple to Operate

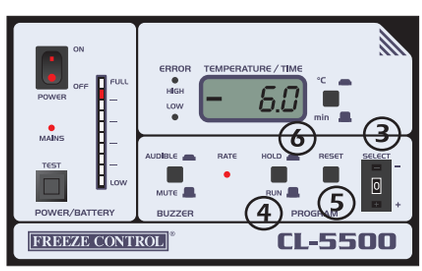
Operation using an Internal Protocol - CL8800, CL5500 & CL2200

- Connect the cryochamber to the temperature controller via the cryochamber socket on the back panel. ①
- Switch on the power to the temperature controller on either front or back panel. ②
- Select Internal Protocol mode with **INT/EXT Select** switch if using **CL8800** temperature controller.
- Select the required Protocol with **Program Select** switch ③
- Press the temperature controller **HOLD/RUN** switch to Hold.④
- Fill the cryobath with liquid nitrogen to a depth of 5 cm. Place the cryochamber with its lid on into the cryobath and wait for the liquid nitrogen to settle before filling the bath to below the bottom lip of the cryochamber.
- Press the **PROGRAM RESET** switch.⑤
  The controller will cool (or warm) to the starting temperature of the selected protocol.
- Place the specimens into the cryochamber when the cryochamber temperature reaches the starting temperature.
- Replace the cryochamber and cryobath lids.
- Select Run with the **HOLD/RUN** switch on the front panel.⑥

The cryochamber temperature will change according to the selected temperature protocol.



CL5500 Back Panel



CL5500 Front Panel

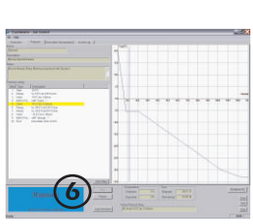
Operation using CryoGenesis™ V5 Software - CL8800 & CL3300

- Connect the cryochamber to the temperature controller via the cryochamber socket on the back panel. ①
- Switch on the power to the temperature controller on the back panel. ②
- Connect the computer to the temperature controller via a serial or USB cable and start CryoGenesis™ software. ③
- Load the appropriate protocol from the CryoGenesis™ software.
- Select External Protocol mode with **INT/EXT Select** switch if using **CL8800** temperature controller ④
- Fill the cryobath with liquid nitrogen to a depth of 5 cm. Place the cryochamber with its lid on into the cryobath and wait for the liquid nitrogen to settle before filling the bath to below the bottom lip of the cryochamber.
- Press the **Start Job** button in CryoGenesis™ software ⑤
- Place specimens into the cryochamber, when the cryochamber reaches the starting temperature of the selected protocol.
- Replace the cryochamber and cryobath lids.
- Press **Run** in CryoGenesis™ Software. ⑥

The cryochamber temperature will change according to the selected temperature protocol.

CL8800 Back Panel

CL8800 Front Panel



For Further Information Contact CryoLogic
www.cryologic.com
enquiry@cryologic.com
Tel: 61 3 9574 7200
Fax: 61 3 9574 7300

CryoLogic
Innovative Instrumentation for Medicine & Life Sciences