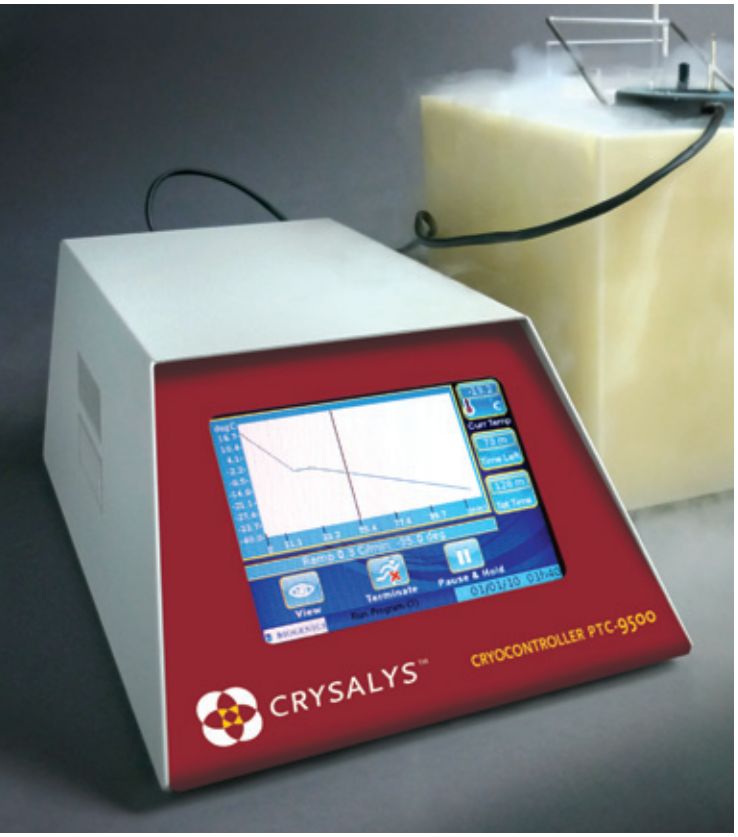
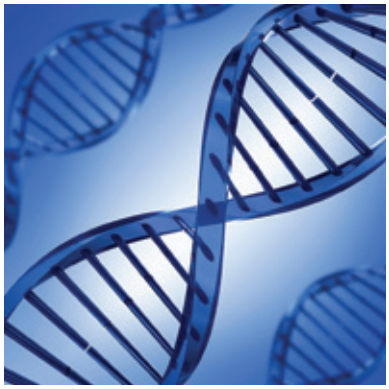
Advanced Cryo Process Management for the 21st Century





CRYSALYS
CRYOCONTROLLER PTC-9500

The most versatile and efficient instrument for cryobiology in the 21st century

Whether your practice is the busiest of embryology laboratories, stem cell research, animal husbandry or aquaculture, the Crysalys PTC-9500 is ready to satisfy the most stringent requirements in cryopreservation.

The Crysalys™ Cryo Process Management System combines features never before found in any previous controlled-rate freezer or vitrification unit

The culmination of 23 years of experience in meeting the requirements of practitioners worldwide, the Crysalys PTC-9500 has it all: User-programmability via touch-screen or computer. Onboard, archiving datalogging. Controlled-rate *and* S3™ Vitrification-ready. Built in, light-weight lithium-ferrous battery UPS. user-friendly graphic interface. Alarm presets defineable by the user.

The PTC-9500 brings together all this, and much more.

Our range of 4-wire and 6-wire cryochambers afford precision in control previously not available, and a range of possibilities in everything from classic straws and security straws, to cryovials, blood bags and more.

Crysalys' advanced PID (Proportional Integral Derivative) targeting parameters bring a level of ramp accuracy and temperature stability never before possible. This advanced system also has the benefit of excellent dynamic power management, making the system perfect for use in the field.

The best process management for precious biologicals

Unlike all early-generation heat exchanging freeze controllers, the Crysalys uses proportional DC, steady-state current to regulate chamber temperature. Early-generation controllers used pulsed DC, which reverses direction at a high frequency and thus may create electromagnetic flux in the core. Research (ASRM P-177, 2009) indicates this may be deleterious to specimen viability.

In addition to its internal battery which guards constantly against mains power interruption, Crysalys can run for up to three hours in the field without mains power, and incorporates the ability to accept 12VDC auxiliary input from a car or truck power system.

All program cycles are logged with a user-defined time-date stamp and a name (if desired) selected by the user through an on-screen interface. These details, along with precise time vs. temperature information for every program run, are loaded to an onboard SD card. At any time, this information can be retrieved by any PC or Mac computer using our included Crysalys CryoLink™ software. Computer operation allows for a larger screen and more detailed graphic information.

Contact us today to learn more about how Crysalys can benefit your practice.

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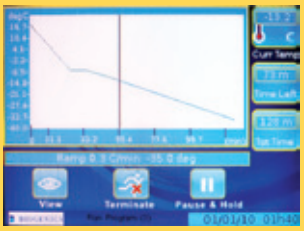
Intuitive graphic user interface

Onboard QWERTY keyboard for entering information

Full user-programmability eliminates need for any "chips" to change



Visual interface of program in progress

"Macro Details" screen allows easy visual check of parameters from a distance

- Controlled-rate (slow cooling) and S3™ vitrification modes
- Fully intuitive 5.7" color touch-screen operation
- Fully user-programmable through touch-screen or computer (PC or Mac)
- Graphic user interface with realtime temperature graph and digital data
- Onboard datalogging and archiving of every cycle to removable SD card
- USB interface for datalogging and programmability
- Ability to name each discrete cycle with patient details, etc. with onboard keyboard
- Automated full-system diagnostics
- Built-in lithium-ferrous UPS with smartcell technology offers complete power outage protection and/or portable operation
- Aux. 12 volt DC power input
- Worldwide mains voltage capable, 90-264 VAC
- Concentric isothermic temperature exchange with Crysalys or retrofit 2-wire RTD cryochambers
- On-screen service prompts and power management indicators
- 0.05°C resolution
- Autotuning PID parameters with DC proportional temperature control prevents EMF effects on specimens

Technical specifications

General

Controlled temperature range	Between +50°C and -196°C
Monitoring and recording range	Between +200°C and -200°C
Thermometry system	Platinum RTD (2 wire or 4 wire)
Temperature warning (onscreen or sound)	User-Definable from ±1.0°C to ±3.0°C
Temperature display & User Interface	5.7" Color TFT LCD Touch screen
Accuracy (Thermometry)	±0.1°C
Temperature Control Resolution (A/D Conversion)	0.05°C
Calibration	Via software and touch screen
Timing	Digital, quartz crystal
Minimum Ramp Rate	0.1°C/min
Dimensions (WxDxH)	8" x 13" x 7"
Weight	7 lbs

Temperature Datalogger

Temperature range	Between +200°C and -200°C
Temperature resolution	0.1°C
Sampling rate	10 per second
Recording rate	10 per minute

Internal Protocols (User-Programmable)

Maximum number of internal programs	16
Maximum steps or ramps per protocol	100
Minimum temperature step size	0.04°C
Maximum duration of protocols	No limit (AC mode)

Programs with Computer

Computer	PC or Mac
Controller computer communication	USB 2.0
Maximum steps or ramps per protocol	100
Minimum temperature step size	0.04°C
Duration of protocols	No limit

Other

Power consumption	Less than 60 Watts
AC Mains Power input:	90-264V, 47 to 63Hz
Auxiliary External Power Input:	External 12VDC
Internal Battery Backup Power (UPS)	12.8Vdc, 6.8Ah
Continuous LN2 consumption	Less than 1 liter per hour (based on cryochamber design)
Safe operating temperature range	+40°C to 0°C
Safe storage temperature range	+50°C to -10°C

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