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Planer
It's a matter of life...

Remote monitoring solutions

Nitrogen low? Equipment drifting? Key staff can be alarmed via phone, email, visual and audible alerts; these alarms can 'cascade' to different people depending on the severity or the equipment involved.

Planer's Assure CFR Part 11 compliant system, allows users to monitor conditions centrally in real-time via wired or wireless sensors.

• www.planer.com

A frozen triumph occurred 26 years ago, in March 1984, when Australian doctors helped the first baby ever to be born from a frozen embryo into the world. Zoe Leyland's mother had 11 embryos frozen, using a new type of Controlled Rate Freezer made by London company Planer.

The slow freezing procedure was a breakthrough and now most IVF laboratories worldwide use it – with up to half a million births from embryos stored in liquid nitrogen.

Cold preservation of cells

Human embryology is the newsworthy side of controlled freezing, but from the 1970s cell researchers became increasingly interested in what happens in the freezing process prior to cryogenic sample preservation.

Variations can mean a viable sample upon thaw, or none at all; with implications for the storage of human or animal embryos, stem cells, semen, botanical seeds, skin, ovarian tissue, heart valves, blood vessels, bone marrow and cell lines. Such specialist freezing techniques are also routinely used in labs for cells used in vaccine and drug manufacture. Temperatures below the glass transition point (Tg) of water (around –136°C) appear to be where biological activity substantially slows down, and –196°C is the preferred temperature for the storage of these bio specimens.

Hence, while refrigerators, deep freezers and extra-cold deep freezers are all useful, the ultra cold environment of liquid nitrogen is increasingly demanded for the preservation of complex or valuable biological samples.

Pioneering company

Planer, based near London's Heathrow airport (UK), designs and builds the electronic, electromechanical and software products it sells.

Established in 1973, the company has evolved from pioneering its large controlled rate machines in animal husbandry to equipping hospitals, IVF labs and pharma research labs with bench top versions and now specialist incubators, software and control and monitoring equipment for related laboratory parameters.

Some 10,000 machines in 60 countries have been sold for temperature control, gas monitoring, pH and humidity management, particle monitoring and liquid nitrogen. Besides the skills of its in-house team, two things seem key to Planer's success: its design and assembly using 'Just in Time' methods; and its long-standing relationships with its 60 sales and service distributors around the world.

There are users of Planer equipment and software in around 70 countries at present – from Azerbaijan right through to Zambia. The company is approved to ISO 9001, ISO13485 and the demanding Medical Devices Directive.

Web-based monitoring

Increasingly, software or firmware-based products are playing a part in the line up.

Nick Pattenden, Product Manager at Planer, explains, "Monitoring and controlling a biological sample in a controlled environment is not that different from doing the same for the actual laboratory or equipment within it."

Systems are now made for monitoring other freezers, for measurement of the lab environment, CO_2 and O_2 monitoring and alarming, and software for stored specimen location. Governmental Tissue Directives from various countries include requirements for the regular monitoring of cells stored at low temperatures and the Planer system meets these objectives, issuing emails to desktops or texts to a portable phone when, for example, liquid nitrogen runs low or equipment drifts off specification.

Planer is also helping researchers with experimental equipment to look at new techniques for preserving larger and more complicated biological samples. Attempts to cryopreserve organs have so far been unsuccessful and storage is limited to temperatures just above freezing for a few days, but who knows – cryobiologists may soon be able to preserve items such as heart, liver or kidney for later transplantation.

For Planer, it really is a matter of life...or life! ❑