EXERGEN SENSORS ENSURE SAFETY, EFFICACY IN FLUID INFUSION FOR MEDICAL PROCEDURES

In a broad spectrum of medical procedures, infusing normothermic fluid is the key to better patient outcomes. That's particularly true in trauma situations when quick delivery of blood products to patients is essential for their survival. In many of these instances, medical professionals rely on portable fluid infusion devices that can warm and infuse fluids at rapid rates.

One such device is the ThermaCor® 1200 Rapid Thermal Infuser, developed by Drs. Hugh Smisson and Richard Cartledge, founders of Smisson-Cartledge Biomedical, LLC (SCB). The pair developed the device because as surgeons they knew the importance and urgency in trauma situations to be able to deliver fluids at body temperature to patients quickly or easily.

The ThermaCor® 1200 system can be used to perform fluid infusion in procedures such as:

- Hypothermia Patients
- Resuscitation
- Cardiac Surgery
- Transplant Surgery
- Irrigation
- Urological Procedures
- Post-Surgical Care
- Thoracic Surgery
- Major Aortic Aneurysms
- Plastic Surgery
- Cancer Treatment
- And More

Exact Temperature is Essential

Of course, as with any application involving heat, it's essential to carefully monitor the temperature of the fluids being infused to the patient to ensure safety and efficacy. For example, it is essential that blood being supplied to a patient is carefully warmed to 37°C (98.6°F) prior to infusion, because, depending on its source, the blood can be at room temperature, refrigerated or any temperature in between—ensuring the correct temperature is essential.

If the infused temperature is too high, there's a risk of damaging blood cells with possibly lethal consequences. If the infused temperature is too low, the risk of hypothermia increases, presenting possible complications or even patient shock. To ensure that the correct blood temperature is maintained from start to finish, the amount of heat applied to the blood must be tightly controlled and be adjusted to the flow and inlet temperature of the donor blood. The foundation of efficient and effective blood temperature management is a well-controlled heat exchange and a reliable temperature measurement mechanism.

The Optimal Solution

For a variety of reasons, it's preferable to measure blood temperature non-invasively. Non-contact temperature sensors have many advantages over invasive sensors, chief among them the fact that sterility is guaranteed as the sensor has no contact with the fluid path. Additionally, while contact sensors are disposable, non-contact sensors can be re-used, which amounts to big cost savings.

Exergen's Micro IRt/c-HB infrared non-contact sensors are ideally suited to measure both the input and output temperature of blood products in the system to help

Pastoor Clercxstraat 26
5465 RH Veghel
The Netherlands

+31 (0)413 376 599
www.cleverir.com
info@cleverir.com

ensure that patients receive fluids warmed to the normothermic temperature.

Additionally, Exergen's patented heat balance equation allows the sensors to be precisely calibrated to measure the variance in temperature between the outside of the tube that transports the fluid, and the blood within the tube. Exergen's heat balance equation, combined with its Micro IRt/c-HB non-contact sensors provide measurements without touching the fluids while delivering accuracy within 0,1°C (0.2°F) and response rates of between 50 and 150 milliseconds.

"The ThermaCor® 1200 Rapid Thermal Infuser is the culmination of our team's work to bring a faster, easier and safer infusion device to the market for better patient care," stated David C. Field, CEO of Smisson-Cartledge Biomedical. "However, the device requires a highly reliable means to properly measure fluid temperature. Exergen Global provided us with the perfect solution. Its non-contact sensors ensure sterility, which of course is paramount in medical procedures. What's more, Exergen Global's team of engineers worked closely with our engineers. The IRt/c sensor solution, including their heat equation, provides the utmost reliability ensuring that fluids will be infused at the proper body temperature, thereby safeguarding patient safety and ultimately the patient's life."

So, regardless if the patient is an adult or a child, if the flow rate is high or low, if the donor blood is chilled or warm, Exergen's temperature sensors reliably provide the critical temperature information required by the ThermaCor® System to respond appropriately and manage the flow of the life-saving fluids.

Commercial Advantages

- Reliable thereby helping to ensure patient safety
- Non-invasive and therefore sterile
- Re-useable solution for greater cost effectiveness
- Allows for very fast system operation in critical trauma situations
- Sensor does not need service or calibration in the field, saving costs and increasing reliability