



## Application note

# Ensuring patient safety through precise temperature control in skin treatments

### Sector

Medical and cosmetic skin treatment systems

### Application

Skin surface temperature monitoring

### Product

Exergen non-contact Micro IRt/c sensors

**Medical and cosmetic skin treatment therapies – including hair removal, cellulite reduction, acne treatment, and skin rejuvenation – rely on controlled heating of skin layers to achieve therapeutic effects. While this heating delivers desired results, it creates risk. Without proper monitoring, skin can overheat, causing patient discomfort, pain, or injury. Safe treatment parameters require continuous, accurate temperature measurement throughout each procedure.**

### Challenges

Contact thermometers cannot track temperature effectively during skin treatments. The treatment probe moves continuously across the skin surface, while contact sensors remain fixed at a single point. Moreover, lotion is applied to the skin during treatment which would cool a contact probe. So, for dynamic procedures, such sensors are impractical. The only viable solution is a non-contact infrared temperature sensor integrated into the treatment probe, which can monitor skin temperature during treatment.



## Solutions

Exergen Micro IRt/c sensors from CleverIR provide non-contact temperature monitoring throughout skin treatment procedures. Positioned inside the treatment probe to track the skin surface, they deliver continuous readings that enable real-time adjustment of treatment intensity. In cellulite treatment applications, the sensor monitors skin temperature with accuracy up to 0.5°C (0.9°F), allowing operators to maintain optimal heating levels while preventing overheating. The compact micro IRt/c fits easily within treatment probe assemblies without interfering with procedures.

## Benefits

Non-contact measurement allows real-time skin temperature monitoring during treatment. Self-powered and intrinsically safe, the sensors require no external power or maintenance. With repeatability error of just 0.01°C (0.02°F), interchangeability error of ±1%, and resolution of approximately 0.05°C (0.09°F), they provide consistent, reliable measurements. Their small size allows integration into space-constrained treatment devices, enhancing both safety and efficacy.



*Exergen IRt/c sensors enable faster, safer skin treatments by providing real-time temperature monitoring that protects patients while optimizing therapeutic results.*

## Results

Integrating Exergen sensors into skin treatment systems delivers measurable improvements. Practitioners can prove they operate safely within prescribed temperature ranges, building patient confidence and regulatory compliance. Real-time monitoring allows use of maximum safe power levels, shortening treatment sessions without compromising safety. Fewer sessions fail due to temperature issues, improving yield and practice efficiency. These benefits help specialists gain trust while ensuring consistent, safe outcomes for every patient.

## Conclusion

Effective skin treatment depends on precise temperature control. Exergen non-contact infrared sensors provide the accuracy, speed, and reliability needed to protect patients while maximizing treatment efficacy. Their compact design and maintenance-free operation make them ideal for medical and cosmetic applications where safety and performance are paramount.