

Enhanced Tissue and Organ Monitoring through Electrical Resonance

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Executive Statement:

An innovative electrode configuration that significantly improves the monitoring of tissues and organs by utilizing electrical resonance.

Technology Overview:

This technology introduces an advanced electrode configuration designed to enhance tissue and organ monitoring. By integrating a resonant circuit, which includes a frequency generator, autotuner, coaxial line, and balun, the system overcomes the limitations of low sensitivity and noise-induced baseline shifts prevalent in existing methods. It operates by forming a resonant circuit with internal and external electrodes, where the tissues between these electrodes affect the resonance characteristics, allowing for precise monitoring of blood flow and perfusion conditions.

Key Advantages:

- Increased detection accuracy of pulsatile components in blood flow and perfusion conditions
- Continuous measurement of parameters like standing wave ratio and impedance, with compensation for baseline shifts
- Versatility in application across various medical monitoring scenarios
- Adaptable to different frequencies and configurations, suitable for a wide range of anatomical regions and medical procedures

Problems Addressed:

- Low sensitivity in the monitoring of tissues and organs
- Noise-induced baseline shifts that affect measurement accuracy
- Limited applicability of existing methods to diverse medical monitoring situations

Market Applications:

- Elective tomography for detailed tissue analysis
- Tissue ablation procedures, both thermal and chemical
- Guidance for therapeutic interventions such as thermoplasty, improving tissue properties