CLAIMS

1. An electrosurgical handpiece, comprising:

a housing for a temperature sensor, wherein the housing defines a first patient-contact surface, an inner surface positioned opposite the first patient-contact surface, and an outer wall extending transversely relative to the first patient-contact surface;

a temperature sensor thermally coupled with the inner surface of the housing;

an energizable electrode defining a second patient-contact surface extending outward of the outer wall of the housing; and

an insulator positioned between the energizable electrode and the housing for the temperature sensor to inhibit thermal conduction between the energizable electrode and the housing for the temperature sensor.

2. The electrosurgical handpiece according to claim 1, further comprising a shaft extending proximally from the energizable electrode and defining an internal bore extending longitudinally of the shaft, wherein the insulator extends from a distal end positioned adjacent the first patient-contact surface and the second patient-contact surface to a proximal end positioned within the internal bore.

3. The electrosurgical handpiece according to claim 2, wherein the internal bore defines a first thread and the insulator defines a second thread, wherein the first and second threads are complementary and matingly engageable with each other.

4. The electrosurgical handpiece according to claim 1, further comprising an electrical conductor extending proximally within the handpiece from the temperature sensor.

5. The electrosurgical handpiece according to claim 1, wherein the first patient-contact surface and the second patient-contact surface are co-centrically aligned with each other.

6. The electrosurgical handpiece according to claim 1, wherein the temperature sensor comprises one or more of a thermocouple, a resistance-temperature detector, a thermistor, and a diode.

7. The electrosurgical handpiece according to claim 1, wherein the housing for the temperature sensor comprises a material having a thermal conductivity equal to or greater than about 200 W/mK.

8. The electrosurgical handpiece according to claim 1, wherein the electrode comprises a dielectric coating defining the second patient contact surface.

9. The electrosurgical handpiece according to claim 8, the dielectric material having a dielectric constant of between about 4 to about 12 at an operating frequency of the energizable electrode.

10. The electrosurgical handpiece according to claim 9, wherein the operating frequency of the energizable electrode is between about 3-30 MHz.

11. The electrosurgical handpiece according to claim 8, the dielectric material coating having a substantially even thickness of about 0.004 to about 0.020 inches.

12. The electrosurgical handpiece according to claim 1, further comprising:

a communication component configured to receive a temperature measured by the temperature sensor and to communicate the received temperature to a control system.

13. The electrosurgical handpiece according to claim 1, wherein the first patient-contact surface has a larger surface area than a surface area of the temperature sensor that is coupled to the housing.

14. The electrosurgical handpiece according to claim 1, wherein the energizeable electrode is capacitively coupled.

15. An electrosurgical system, comprising:

an electrosurgical generator configured to output a radio-frequency (RF) waveform; and

the electrosurgical handpiece of claim 1, wherein the energizable electrode of the electrosurgical handpiece is configured to output the RF waveform received from the electrosurgical generator.

16. The electrosurgical system according to claim 15, wherein the electrosurgical generator further comprises:

a control system configured to receive a temperature measurement from the temperature sensor, compare the received temperature to a threshold temperature, and to modify the output waveform in response to the comparison.

17. The electrosurgical system according to claim 15, wherein the electrosurgical generator further comprises:

a generator configured to combine a first current waveform having a corresponding first frequency, a first amplitude, and a first pulse-width with a second current waveform having a corresponding second frequency, a second amplitude, and a second pulse-width to define a blended waveform output; and

a control system configured to control one or more of the first frequency, the first amplitude, the first pulse-width, the second frequency, the second amplitude and the second pulse-width responsive to a temperature received from the temperature sensor.

18. The electrosurgical system according to claim 17, wherein the electrosurgical generator further comprises:

a first power source configured to generate the first current waveform;

a second power source configured to generate the second current waveform; and

a radio-frequency amplifier configured to blend the first and second current waveforms to define a blended waveform and to output the blended waveform to the electrosurgical handpiece.