WHAT IS CLAIMED IS:

1. A humidifier system useable in a gases supply system, the humidifier system comprising:

a humidifier;

a conduit comprising:

a first electrically conductive element; and

a second electrically conductive element;

a controller configured to monitor a signal using one or more of the first electrically conductive element and the second electrically conductive element to determine a value indicative of moisture in the conduit based at least in part on the signal.

2. The humidifier system of Claim 1, wherein the signal is indicative of a capacitance between the first electrically conductive element and the second electrically conductive element.

3. The humidifier system of Claim 1, wherein the signal is indicative of a change in capacitance between the first electrically conductive element and the second electrically conductive element.

4. The humidifier system of any of Claims 1-3, the first electrically conductive element and the second electrically conductive element are separated by a distance configured to allow for a capacitive charge to be sensed between the first electrically conductive element and the second electrically conductive element.

5. The humidifier system of any of Claims 1-4, further comprising a dielectric material located between the first electrically conductive element and the second electrically conductive element.

6. The humidifier system of Claim 5, wherein the dielectric material is vapor or liquid permeable.

7. The humidifier system of Claim 6, wherein the vapor permeable dielectric material allows evaporation of water to ambient air while inhibiting passage of liquid water and breathing gases to ambient air.

8. The humidifier system of any of Claims 1-7, wherein the controller is configured to determine the value indicative of moisture based on a comparison of a measurement of the first electrically conductive element and/or the second electrically conductive element with a pre-determined threshold.

9. The humidifier system of Claim 8, wherein the value indicative of moisture comprises a time constant or a change in time constant of a circuit comprising the first electrically conductive element or the second electrically conductive element in series with the reference resistor.

10. The humidifier system of Claim 1, wherein the signal is indicative of a time constant or change in a time constant of a circuit comprising the first electrically conductive element and/or the second electrically conductive element.

11. The humidifier system of Claim 1, wherein the signal is indicative of a resonant frequency of a circuit comprising the first electrically conductive element and/or the second electrically conductive element.

12. The humidifier system of Claim 1, wherein the signal is indicative of a change in a resonant frequency of a circuit comprising the first electrically conductive element and/or the second electrically conductive element.

13. The humidifier system of any of Claims 1 or 10-12, further comprising a resonant circuit wherein an inductive element is electrically connected in parallel with a capacitive element.

14. The humidifier system of Claim 13, wherein the resonant circuit is electrically connected in parallel the circuit comprising the first electrically conductive element and/or the second electrically conductive element.

15. The humidifier system of either of Claims 13 or 14, wherein the resonant circuit is tuned to exhibit resonant behavior when sufficiently excited by the signal.

16. The humidifier system of any of Claims 13-15, wherein the resonant circuit is tuned to exhibit resonant behavior when excited by the signal, wherein the signal has been selected to excite the resonant circuit.

17. The humidifier system of any of Claims 1-16, wherein the controller is configured to output an alarm if the value indicative of moisture falls below a first threshold value.

18. The humidifier system of any of Claims 1-17, wherein the controller is configured to output an alarm if the value indicative of moisture exceeds a second threshold value.

19. The humidifier system of any of Claims 1-18, wherein the alarm indicates an unacceptable level of moisture.

20. The humidifier system of any of Claims 1-19, wherein the controller is configured to automatically reduce humidification of breathing or insufflation gases in response to the value indicative of moisture and/or humidity in the conduit.

21. The humidifier system of any of Claims 1-20, wherein the reduction of humidity delivered to the conduit is achieved by a reduction in heater plate power.

22. The humidifier system of any of Claims 1-21, wherein the first electrically conductive element and the second electrically conductive element are spirally wound about at least a length of the conduit.

23. The humidifier system of any of Claims 1-22, wherein the first electrically conductive element and the second electrically conductive element are spirally wound within, through, or around the conduit.

24. The humidifier system of any of Claims 1-23, wherein the first electrically conductive element and the second electrically conductive element form part of the conduit walls.

25. The humidifier system of any of Claims 1-24, wherein the first electrically conductive element is a heater wire.

26. The humidifier system of any of Claims 1-25, wherein the second electrically conductive element is a sensing wire.