WHAT IS CLAIMED IS:

1. A respiratory assistance system or apparatus, the system or apparatus comprising:

a gases flow path configured to deliver a flow of gases to a patient;

a source of respiratory gases; and

one or more acoustic receivers, the one or more acoustic receivers configured to detect acoustic signal generated by the respiratory assistance apparatus; and

a controller configured to receive the detected acoustic signal and use the detected acoustic signal to determine a fault condition in the respiratory assistance apparatus;

wherein the controller is configured to determine a fault condition based on a relationship of amplitudes between different fault conditions, of the detected acoustic signal.

2. The respiratory assistance system or apparatus of Claim 1, wherein the detected acoustic signal comprises at least in part a sound from a motor.

3. The respiratory assistance system or apparatus of Claims 1 or 2, wherein the fault condition is related to or correlatable with a motor speed.

4. The respiratory assistance system or apparatus of any of Claims 1 to 3, wherein the type of the fault condition is related to or correlatable with a motor speed.

5. The respiratory assistance system or apparatus of any of Claims 1 to 4, wherein the detected acoustic signal is filtered to remove noise that is unrelated to motor noise.

6. The respiratory assistance system or apparatus of any of Claims 1-5, wherein the controller is configured to analyze spectrally the detected acoustic signal to determine a frequency component indicative of the existence of a fault.

7. The respiratory assistance system or apparatus of any of Claims 1-6, wherein the controller is configured to determine a fault condition based on a threshold amplitude of the detected acoustic signal at a predetermined frequency or range of frequencies.

8. The respiratory assistance system or apparatus of Claim 7, wherein the threshold amplitude is determined from a pre-determined baseline amplitude.

9. The respiratory assistance system or apparatus of Claim 7, wherein the threshold amplitude is determined from an amplitude at some other frequency.

10. The respiratory assistance system or apparatus of any of Claims 1-9, wherein the controller is configured to determine the fault condition based on a shape of the detected acoustic signal, wherein one or more fault conditions are distinguished based on a comparison of the shape of the acoustic signal with a shape template corresponding to a particular fault type, stored in a memory of the controller.

11. The respiratory assistance system or apparatus of Claim 10, wherein the shape of the acoustic signal is normalised for amplitude.

12. The respiratory assistance system or apparatus of any of Claims 1-11, wherein the motor speed is varied during a fault condition detection operation and the controller is configured to determine a fault condition based on a corresponding varying of a portion of the signal caused by or relating to the fault condition.

13. The respiratory assistance system or apparatus of any of Claims 1-12, wherein ultrasonic sensors and/or any other sensors of the respiratory assistance system or apparatus are turned off during a fault condition detection operation.

14. The respiratory assistance system or apparatus of any of Claims 1-13, wherein the one or more acoustic receivers comprise two acoustic receivers.

15. The respiratory assistance system or apparatus of any of Claims 1-14, wherein the one or more acoustic receivers comprise one or more of condenser microphones, electret microphones, or MEMS microphones.

16. The respiratory assistance system or apparatus of any of Claims 1-14, wherein the one or more acoustic receivers comprise MEMS microphones.

17. The respiratory assistance system or apparatus of any of Claims 1-16, wherein the one or more acoustic receivers are located within the gases flow path.

18. The respiratory assistance system or apparatus of Claim 16, wherein the controller is configured to estimate a temperature of the one or more acoustic receivers to be at the same temperature as a measured temperature of gases in the flow path.

19. The respiratory assistance system or apparatus of any of Claims 1-17, wherein the respiratory assistance system further comprising a blower.

20. The respiratory assistance system or apparatus of Claim 19, wherein the blower is configured to provide a high flow therapy to a patient.

21. The respiratory assistance system or apparatus of any of Claims 1-20, wherein the one or more acoustic receivers are comprised within a removable sensor module.

22. The respiratory assistance system or apparatus of Claim 19 or Claim 20, wherein the blower and the one or more acoustic receivers are comprised within a removable blower and sensor module.

23. The respiratory assistance system or apparatus of Claim 21 or Claim 22, wherein the removable sensor module or blower and sensor module is configured for insertion into a housing of the respiratory assistance system.

24. The respiratory assistance system or apparatus of Claim 21 or Claim 22, wherein the blower and the one or more acoustic receivers are comprised within a non-removable sensor module or blower/sensor module.

25. The respiratory assistance system or apparatus of Claim 21 or Claim 22, wherein the sensor module or the blower and sensor module comprises a sensing circuit board.

26. The respiratory assistance system or apparatus of Claim 25, wherein the one or more acoustic receivers are located on the sensing circuit board.

27. The respiratory assistance system or apparatus of any of Claims 1-26, wherein the respiratory assistance system is further configured to generate audio and/or display/visual outputs when a fault condition is detected.