Claims

1. A cargo detection system for a refrigerated cargo container, comprising:

a cargo sensor body configured to detect presence of cargo in a refrigerated cargo container;

a sensor bracket configured for securing the cargo sensor body at a refrigeration unit of the refrigerated cargo container;

a temperature sensor disposed at the cargo sensor body configured to detect a temperature of the cargo sensor body; and

a temperature controller operably connected to the temperature sensor and configured to activate the cargo sensor body for collection of data when the temperature of the cargo sensor body is above a threshold.

2. The cargo detection system of claim 1, wherein the threshold is zero degrees Celsius.

3. The cargo detection system of claim 1, wherein the sensor bracket includes:

a bracket base at which the cargo sensor body is secured; and

a plurality of bracket legs extending from the bracket base to at least partially define an air gap between the sensor bracket and the refrigeration unit when the sensor bracket is installed thereto.

4. The cargo detection system of claim 1, wherein the sensor bracket and the cargo sensor body are formed as a unitary element.

5. The cargo detection system of claim 1, wherein the cargo sensor body comprises an infrared sensor.

6. The cargo detection system of claim 1, wherein the sensor bracket includes a bracket opening configured to improve air flow to the cargo sensor body.

7. A refrigeration assembly for a refrigerated cargo container, comprising:

a refrigeration unit, including:

an evaporator;

a defroster heater configured to defrost the evaporator; and

the cargo detection system of claim 1 secured to the refrigeration unit, including a cargo sensor;

wherein the defroster heater and the cargo sensor are disposed such that activation of the defroster heater increases a temperature of the cargo sensor.

8. The refrigeration assembly of claim 7, further comprising:

a temperature sensor disposed at the cargo sensor configured to detect the temperature of the cargo sensor; and

a temperature controller operably connected to the temperature sensor and configured to activate the cargo sensor for collection of data when the temperature of the cargo sensor is above a threshold.

9. The refrigeration assembly of claim 8, wherein the threshold is zero degrees Celsius.

10. The refrigeration assembly of claim 7, wherein the cargo sensor is disposed above the defroster heater.

11. The refrigeration assembly of claim 7, wherein the cargo sensor includes:

a cargo sensor body configured to detect presence of cargo in a refrigerated cargo container; and

a sensor bracket configured for securing the cargo sensor body at the refrigeration unit.

12. The refrigeration assembly of claim 11, wherein the sensor bracket includes:

a bracket base at which the cargo sensor body is secured; and

a plurality of bracket legs extending from the bracket base to at least partially define an air gap between the sensor bracket and the refrigeration unit when the sensor bracket is installed thereto.

13. The refrigeration assembly of claim 11, wherein the sensor bracket and the cargo sensor body are formed as a unitary element.

14. The refrigeration assembly of claim 11, wherein the sensor bracket includes a bracket opening configured to improve air flow to the cargo sensor body.

15. The refrigeration assembly of claim 7, wherein the cargo sensor comprises an infrared sensor.

16. A refrigerated cargo container, comprising:

a cargo container;

a refrigeration unit, including:

an evaporator;

a defroster heater configured to defrost the evaporator; and

the cargo detection system of claim 1 secured to the refrigeration unit, including a cargo sensor;

wherein the defroster heater and the cargo sensor are disposed such that activation of the defroster heater increases a temperature of the cargo sensor.

17. The refrigerated cargo container of claim 16, further comprising:

a temperature sensor disposed at the cargo sensor configured to detect the temperature of the cargo sensor; and

a temperature controller operably connected to the temperature sensor and configured to activate the cargo sensor for collection of data when the temperature of the cargo sensor is above a threshold.

18. The refrigerated cargo container of claim 16, wherein the cargo sensor is disposed between the defroster heater and a ceiling of the cargo container.

19. The refrigerated cargo container of claim 16, wherein the cargo sensor includes:

a cargo sensor body configured to detect presence of cargo in a refrigerated cargo container; and

a sensor bracket configured for securing the cargo sensor body at the refrigeration unit.

20. The refrigerated cargo container of claim 19, wherein the sensor bracket includes:

a bracket base at which the cargo sensor body is secured; and

a plurality of bracket legs extending from the bracket base to at least partially define an air gap between the sensor bracket and the refrigeration unit when the sensor bracket is installed thereto.