

# Application Spotlight

## T3400 Series A2L Refrigerant Leak Detection Sensor Module

In support of the Kigali Amendment to the Montreal Protocol and the Paris Climate Agreement's focused efforts to reduce global warming, government regulators have promoted the use of alternative refrigerants with lower Global Warming Potential (GWP).

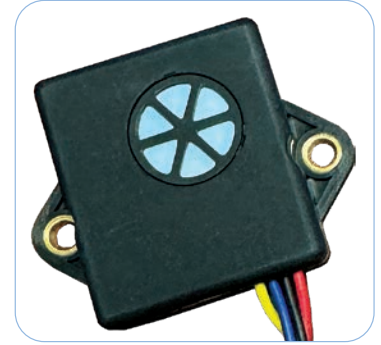
A critical area of the focus for regulators has been the reduction of greenhouse gas emissions from traditional hydrofluorocarbon (HFC) refrigerants released to the atmosphere. This has led to the introduction of lower GWP limits for HVAC products, chillers, and refrigeration systems. In response, manufacturers have developed lower GWP refrigerants and systems to utilize these new refrigerants. However, these lower GWP refrigerants typically exhibit more flammable properties than those that they are replacing, classified as A2L refrigerants.

In the US and Canada, UL 60335-2-40 is the standard covering electrical heat pumps, air conditioners, and dehumidifiers (Europe follows IEC 60335-2-40) as the basis for design, evaluation, testing, and certification of HVAC equipment using Low GWP refrigerants.

One of the risks associated with UL 60335-2-40 equipment is refrigerant leakage. Therefore, installed equipment with a refrigerant charge of approximately four pounds of refrigerant will require a refrigerant leak detection system.<sup>(1)</sup>

Amphenol Sensors has developed an A2L refrigerant leak detector sensor based on **thermal conductivity** gas detection technology. This Telaire sensor module is designed to interoperate with refrigeration system controls. It is a factory pre-calibrated OEM module with active humidity and pressure compensation and is suitable for the detection of R32 and R32 refrigerant blends such as R454B. In operation, the sensor module is an integral component within an A2L leak detection system which works with the OEM control logic to activate the evaporator fan and use circulated air to quickly disperse and dilute refrigerant in the event of a leak. This UL 60335-2-40 requirement is intended to prevent the formation of flammable refrigerant concentrations.<sup>(1)</sup>

(1) <https://www.ul.com/news/understanding-ul-60335-2-40-refrigerant-detector-requirements>



### Features

- Proven thermal conductivity technology
- Suitable for R32 and R32 blend refrigerants; 0 – 100% LFL measurement range
- Factory calibrated with integrated humidity and pressure compensation
- Fast response time, <15s per UL60335-2-40
- Long-life operation, ~15yrs
- Modbus communication protocol, ppm concentration and alarm state(s)
- ETL UL60335-2-40 recognized component (R454B); UL recognition pending
- Custom packaging, communications protocol, and interconnections available

### Telaire Advantage

**Telaire** products have been at the forefront of carbon dioxide and gas sensing technology for the last 30+ years and are the originators of the maintenance free CO<sub>2</sub> infrared sensor.

**Telaire** has over 35 technology patents including ABC Logic™ and warrants single-wavelength sensor calibration for the life of the sensor.

**Telaire** is a trusted OEM partner and solutions provider in HVAC, automotive, industrial and healthcare markets.

**Amphenol**  
**Sensors**

[www.telaire.com](http://www.telaire.com)

[www.amphenol-sensors.com](http://www.amphenol-sensors.com)