

Why is Certification to Standard UL 2075 Important?

Toxic and combustible gas sensors are the cornerstone of safety systems in many applications. The danger posed by these invisible gases can be completely eliminated by the use of reliable sensors in a well-maintained ventilation system. While these sensors protect human occupants from the harmful effects of these gases, because they continuously monitor the gas concentration level all day / every day, operation of the ventilation fans can be optimized thus minimizing energy cost, noise and vibration.



What is UL Standard 2075?

UL Standard 2075 defines a comprehensive set of design and functional performance criteria necessary to create a reliable gas sensor (the title of the Standard is “Gas and Vapor Detectors and Sensors”). The Standard was first released in 2006. It has been updated several times, but the core requirements have remained unchanged. The insert box at the right is a summary of the functional test and device evaluation criteria.

How do products become UL 2075 Listed?

UL Listing can only be certified by a Nationally Recognized Testing Laboratory (NRTL). The manufacturer submits product samples which are independently evaluated and tested at the lab by trained engineers and technicians. If the product meets all the requirements, the lab issues a test report and an “Authorization to Mark” (ATM) document which includes the products that are covered and the exact marking that is authorized to be printed on those products. After initial issuance, the certification must be regularly renewed – including visits by NRTL staff to the manufacturer’s production site to verify that there have been no changes in design, manufacturing, or component sourcing – or the certification will expire.

Are “UL Listed”, “UL Recognized” and “UL Approved” equivalent?

No! UL Listing is for complete products that have been verified by the NRTL to be in full compliance with the Standard. UL Recognized (shown by a UR marking) means that a component (such as an electrochemical carbon monoxide sensing element) has met the criteria for that component only. Other phrases such as “UL Approved”, “UL Certified”, “UL Compliant” and the like are marketing terms that lack the authority of an independent test lab. Want to be sure that a product is code compliant? Check the NRTL issued ATM and/or the actual product label.

Is UL 2075 Listing required in all jurisdictions?

Since 2018, the International Mechanical Code has required UL 2075 Listing for carbon monoxide and nitrogen dioxide sensors in enclosed parking garages. Many similar facilities that also routinely have vehicles in enclosed buildings (such as package sorting / delivery hubs) also require UL 2075 Listing. Every jurisdiction has its own mechanical code so UL 2075 Listing may not be required everywhere yet. However, it is in the best interest of all stakeholders – facility owners / operators, mechanical engineers of record, contractors, and most importantly facility occupants – to deploy sensors that have been third-party certified for performance. This is especially true for consultants and contractors that work with facilities in multiple jurisdictions and don’t want to inadvertently allow non-compliant sensors that would fail plan check or inspection.

For additional information on the evolution of the International Mechanical Code section on ventilation controls in enclosed parking garages, please see our [“IMC 2021 Changes Affecting Parking Garage Ventilation System Implementation”](#) [whitepaper](#).

UL 2075 Performance Tests

- PCB Circuit Spacing
- Robustness of Mechanical Assembly
- Grounding
- Polarized Power Supply Connection
- Suitability of Internal Wiring
- Sensitivity
- Selectivity
- Electrical Supervision
- Strain Relief
- Circuit Measurement
- Electric Shock
- Overvoltage
- Undervoltage
- Dust Test
- Static Discharge
- Replacement Test
- Jarring
- Flooding with Undiluted Gas
- Variable Ambient Temps
- Effect of Shipping and Storage
- High Humidity
- Low Humidity
- Leakage Current
- Internal Transients
- Extraneous Transients
- Low Voltage Transients
- Stability
- Pressure
- Temperature
- Abnormal Operations
- Overload Test
- Endurance
- Thermoplastic Materials
- Dielectric Withstand
- Corrosion Salt
- Vibration
- Sensor Replacement
- Field Service Test Go/No Go