

# A2L Refrigerant Gas Sensor Module Market is Estimated to Expect Sales of US\$ 180.14 Million By 2031 | Astute Analytica

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The refrigeration industry is changing on a worldwide scale. The switch from high-GWP refrigerants to A2L (mildly flammable) refrigerants has accelerated significantly as attention on environmentally benign and

sustainable cooling solutions has grown. Technology developments and the growing global attention on environmental preservation drive market expansion.



Governmental authorities have taken the initiative to impose strict regulatory measures focusing on greenhouse gas emissions in response to the growing worldwide attention on environmental conservation. Traditional refrigerants are thought to be responsible for between 2 and 4% of all worldwide carbon dioxide equivalent emissions, according to recent estimates on the global A2L refrigerant gas sensor module market. The EU F-Gas Regulation in particular has established a falling phasedown route for HFCs with the goal of reducing their use by two-thirds by 2030. According to the Environmental Protection Agency (EPA), the U.S. has set a goal of reducing HFCs by more than 40% during the following 15 years. Such regulations are now the main impetus behind the quick adoption of A2L refrigerants and the required gas sensor modules by enterprises and industries.

Technology developments have been booming in the A2L refrigerant gas sensor module market, especially in the A2L gas sensor module sector, concurrent with the regulation change. Integration of the IoT (Internet of Things) with these sensors has been one of the most innovative developments. In 2022, almost 35% of all newly manufactured A2L sensor modules

were equipped with IoT capabilities., and that percentage will rise to 60% by the end of 2025. Furthermore, developments in Al-driven algorithms are improving these sensors' sensitivity and dependability in the market. According to an Astute Analytica study, compared to A2L sensors from a decade ago, current A2L sensors with Al support have decreased false alarms by up to 70%.

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By generating a staggering 42.8% of the industry's revenue, the domestic refrigeration sector commands the lion's share of the global A2L refrigerant gas sensor module market. Factors such as rising urbanization and increasing disposable incomes contribute to the domestic refrigeration segment's dominance in the market.

The A2L refrigerant gas sensor module market has seen a significant rise in house renovations and modifications owing to the 2020 pandemic and the ensuing work-from-home culture. As a result, the home HVAC market saw growth. For these improved units, the A2L refrigerant—known for having a lesser propensity to cause global warming—became the refrigerant of choice. As a result, there was a noticeable increase in demand for A2L refrigerant gas sensor modules for home refrigeration.

Homeowners today are increasingly informed and environmentally conscious. Appliances that are eco-friendly and save energy are preferred, and this is not simply a trend in wealthy countries or big cities. The same patterns are being seen in emerging economies. Sales of environmentally friendly refrigeration units are expected to increase by 18% in 2022, with a sizable share occurring in developing nations.

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The Asia Pacific region dominates the A2L refrigerant gas sensor modules market. Asia Pacific has established itself as the center for A2L refrigerant gas sensor module advancements, capturing an impressive revenue share of over 35%.

The fundamental forces for this domination come in many forms, from legal changes to demands particular to the industry. In the Asia Pacific region, nations like China, India, Japan, and Australia shine out. Their combined market share has increased, with China, which has a sizable HVAC industry, experiencing a nearly 7% annual growth rate. A2L-regulated AC systems are also being adopted at notable rates; in the past year, Japan had a 12% increase, India 10%, and Australia 8%.

Beyond these figures, the regulatory environment has been crucial. China unveiled its HFC reduction plan via the "National Plan for China to Implement the Montreal Protocol," aligning its policies with global environmental aims. This strategy, which calls for a startling 50% reduction in HFC usage by 2030, has strengthened the country's commitment to sustainability, resonating

with attitudes throughout the Asia Pacific.

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The market for A2L refrigerant gas sensor modules is becoming more competitive on a global scale. The three most active markets are in Asia, North America, and Europe, where major manufacturers are striving for supremacy. The market saw an outstanding increase in investments, mergers, and acquisitions as of the previous fiscal year.

Recent trends indicate that the dominant firms are differentiating themselves through technology advancements, integrated solutions, and aggressive pricing methods, according to the market dynamics. These strategies have also been used to solve supply chain issues, which are a recurring problem in this market that is expanding quickly.

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- Cubic Sensor and Instrument Co., Ltd.
- · Figaro Engineering Inc.
- GVZ Components srl
- NevadaNano
- · Nissha Co., Ltd.
- Senseair
- · Process Sensing Technologies
- Other Prominent Players

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- Metal Oxide Semiconductor (MOS) Sensors
- Nondispersive Infrared (NDIR)
- Others
- o Micro Machined Membrane
- o Thermal Conductivity
- o Speed of Sound (SoS)

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- · Commercial Refrigeration
- · Residential Refrigeration
- Industrial Refrigeration
- · Automotive Air conditioning
- Others

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- North America
- o The U.S.
- o Canada
- o Mexico
- Europe
- · Western Europe
- ☐ The UK
- □ Germany
- □ France
- Italy
- □ Spain
- o Rest of Western Europe
- Eastern Europe
- Poland
- □ Russia
- o Rest of Eastern Europe
- Asia Pacific
- o China
- o India
- o Japan
- o Australia & New Zealand
- o South Korea
- o ASEAN
- o Rest of Asia Pacific
- Middle East & Africa (MEA)
- o Saudi Arabia
- o South Africa
- o UAE
- o Rest of MEA
- South America
- o Argentina
- o Brazil
- o Rest of South America

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