Automotive R744 Refrigerant Leakage Monitoring Sensor

ACDS-1009

Cubic ACDS-1009 is an automotive gas sensor based on Non-Dispersive Infrared (NDIR) technology, mainly designed to effectively monitor in-cabin CO2 concentrations to enable on-demand ventilation control, and ensures vehicle safety by real-time monitoring R744 refrigerant leakage.

Cubic ACDS-1009 features fast response, low power consumption, and long lifetime. Facing the implementation of EU F-gas Regulation, it can be widely used in automotive HVAC systems, providing an effective solution for vehicle refrigerant leakage safety monitoring.

Working principle

NDIR (Non Dispersive Infrared) Technology
CO2 gas has a strong absorption of infrared ray with a specific wavelength. According to the Lambert-Beer law, the infrared absorption is highly correlated to CO2 gas concentration. The technology is commonly referred as NDIR (Non Dispersive Infrared) technology. Compared with other technologies like electrochemistry, catalytic combustion, solid electrolyte, semiconductor, NDIR technology advantages: good selectivity, anti-poisoning to harmful gas, fast response and good stability, high signal-to-noise ratio, long life, etc.

Features

- Non-dispersive infrared (NDIR) technology with high reliability
- Simultaneous monitoring R744 refrigerant leakage and in-cabin CO2 concentration
- Low power consumption, low power mode ≤1mA
- Fast response for refrigerant leakage detection
- Less cross interference with other gases

Specifications

Working Principle	NDIR Technology
Measurement Gas	R744
Measurement Range	400~60000ppm
Measurement Accuracy	①400~10000ppm: 0~50°C: ±100ppm or ±10% reading -40~0°C, 50~85°C: ±200ppm or ±20% reading ②10000~60000ppm : -40~85°C: ±200ppm or ±20% reading
Average Working Current	Normal working mode, ≤100mA Low power mode, ≤1mA
Resolution	1ppm
Response Time	⩽15s
Working Condition	-40~+95°C, 0-99%RH (non-condensing)
Storage Condition	-40~+110°C, 0-99%RH (non-condensing)
Working Temperature	-40~85°C
Working Voltage	DC 9~16V, 12V standard voltage
Lifetime	+15 Years
Communication	LIN

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