GVZ components

Your Sensing Solutions

Explosion Proof Gas Detectors

For Flammable Gas and A3 Refrigerants



Description

The new explosion-proof Gas Detector Series includes models AF110, AF111, AF111-R, ANR-D, and ANR-S. This SIL 2-certified range of gas detectors is engineered for monitoring combustible gases across hazardous areas, as well as modern HVAC-R applications utilizing flammable refrigerants.
The product lineup is available in three display configurations:

- A high-visibility OLED display with integrated audible and visual alarms;
- An essential, practical backlit LCD display;
- A blind (non-display) enclosure for the most cost-effective ATEX and SIL 2-compliant deployments.

Sensing technology options include infrared (NDIR) and catalytic bead (pellistor) sensors. Thanks to a modular smart sensor design, the architecture supports hot-swapping and simplified field maintenance with pre-calibrated replacement cartridges. All models include infrared remote control operation for non-intrusive routine calibration and configuration in hazardous locations.

Applications

- Leak detection in Oil & Gas sites & trasportation
- Leak detection in industrial HVAC-R systems
- All ATEX demanding industries

Features & Benefits

- Integrated Alarm Signaling: Integrated audible and visual alarms (sounder and strobe) on selected models.
- High-Visibility Display: Wide-viewing-angle, high-brightness OLED display for clear readout in any ambient light condition (AF Series).
- Smart Pre-Calibrated Plug & Play Module: Patented sensor module integrating factory calibration data and operational parameters; enables hot-swappable replacement without field recalibration, even when changing target gas types.
- Rugged Enclosure: Heavy-duty enclosure in stainless steel (316L) or copper-free aluminum alloy, engineered for harsh industrial environments.
- Relay Outputs: Three internal potential-free relays (Alarm 1, Alarm 2, Fault) for external executive control and interlock actions.
- Versatile Signal Interface: Standard 3-wire 4–20 mA analogue output and digital RS-485 Modbus RTU communication.
- Ingress Protection: IP66-rated weather-proof housing.
- Non-Intrusive Calibration: Optical/Infrared remote control interface for one-man calibration without opening the flameproof enclosure.
- Functional Safety & Approvals: ATEX and IECEx certified for Zone 1/21 (Ex d / Ex db), SIL 2 capable according to IEC 61508.

GVZ Components Srl - T: +39 02 3340 0846 E: info@gvzcomp.it W: https://gvzcomp.it

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PART NUMBER DEFINITION						
Product code	**Gas Sensor Tec**	**Display**	**Signal Outputs**	**Relays**	**ATEX**	**SIL Level**
GD-AF110	Catalytic	OLED	4-20 mA	3x	Zone 0	SIL2
GD-AF111	Catalytic	OLED	Modbus RS485	3x	Zone 0	SIL2
GD-AF111-R	Infrared	OLED	Modbus RS485	3x	Zone 0	SIL2
GD-ANR-D	Catalytic	LCD	Modbus RS485	3x	Zone 0	SIL2
GD-ANR-S	Catalytic	No-display	Modbus RS485	3x	Zone 0	SIL2

TECHNICAL DATA					
Feature	**GD-AF110**	**GD-AF111**	**GD-AF111-R**	**GD-ANR-D**	**GD-ANR-S**
Sensor Technology	Catalytic		Infrared	Catalytic	
Target gas	Combustible gas (Methane, Propane, Butane, Hydrogen, etc)				
Measure range	0-100%LEL				
Response Time (T90)	T90≤30S				
Resolution	1% LEL				
Accuracy	≤±5%F.S				
Outputs	4-20mA + 3x Relays	Modbus + 3x Relays			
Visual information	Display + LED light + acustic alarm			Display + LED	--
Operation method	Wireless remote control for programming and calibration				
Supply voltage	24VDC (working voltage range: 18VDC~28VDC)				
Power consumption	< 3,5W			< 2,5W	
Dimensions	145 x 202 x 100 mm			165 x 140 x 78 mm	
Operating temperature	-40°C ~ 66°C			-40°C ~ 70°C	
Operating humidity	10~95%RH non-condensing				
Operating pressure	80-120kPa				
IP Grade	IP66			IP65	
Certifications & Approvals	IECEX - ATEX - SIL2				
Manufacturer	Nanjing AIYI Technologies Co., Ltd.				

Release 102026

System Architecture Overview

The integrated gas detection system comprises:
Field gas detectors installed directly in the hazardous area for continuous real-time monitoring;
A **gas control panel** (controller) that displays measured gas concentrations and triggers visual/audible alarms if preset thresholds are exceeded;
An **interlock relay module** configured to drive external safety actuators such as ventilation fans, emergency shut-off valves, and horn/strobe units;
A **host supervisory system** (PLC / IPC / SCADA / DCS) responsible for centralized plant control, diagnostics, and long-term data logging.

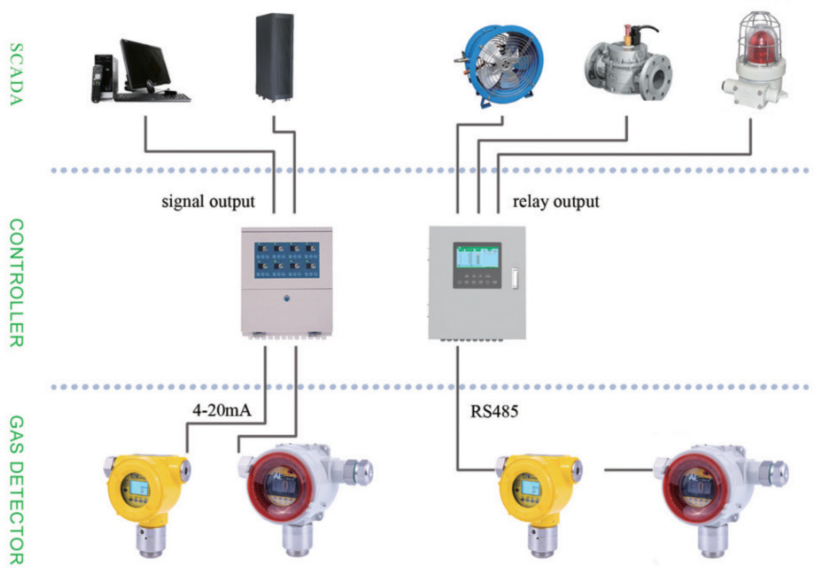


DIAGRAM of GAS DETECTION SYSTEM