LUMASENSE™ TECHNOLOGIES

INNOVA Multi Gas Monitoring Instruments

Cost-effective, customizable Refrigerant Leak Prevention System for a wide variety applications

Refrigerant Leak Monitor INNOVA 1316-2

CE

- Measures most common refrigerants used in the industry today
- Cost-effective: low initial investment and cost of ownership
- Short warm-up and fast response time
- Extremely Stable: rarely needs calibration

The INNOVA 1316-2 Refrigerant Leak Monitor from LumaSense Technologies is a cost-effective gas monitor suitable for measuring refrigerant leaks. The 1316-2 can measure up to five gases and can be easily customized for different measurement tasks by combining relevant modules and sensors.

The 1316-2 configuration can measure concentrations of Carbon dioxide and Freon. Customers may choose between measurement of Freon 134a and Freon 404a or other Freons, depending on needs.

The 1316-2 does not require highly skilled operators. Its innovative design, based on proven measurement principles, ensures that calibrations are seldom required. The 1316-2 automatically compensates for drift using a zero calibration routine while measurements are performed.

The software supplied with the monitor provides a user-friendly way to configure the monitor and display real-time measurement data in either a numeric or graphical display. The software can communicate with up to four instruments, each representing a separate sample point.

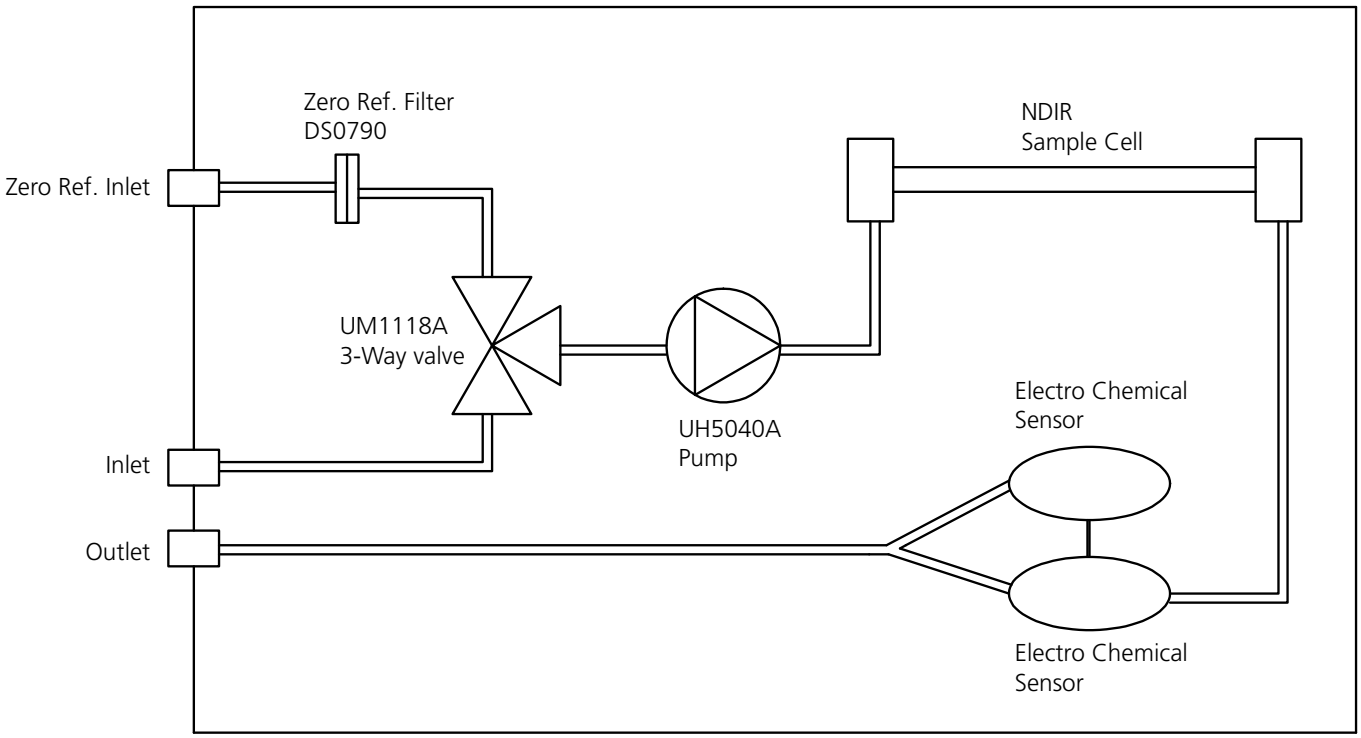
Application areas:

- Refrigerant leak monitoring
- Leak detection

Measurement Methods

All 1316 modules use a field proven Non-Dispersive Infrared (NDIR) measurement technology. The module optics incorporate a precision beam focusing architecture. The concentrated infrared beam is passed through the sample chamber then into an optical assembly of highly specialized filters and a unique multi-element detector.

The monitor is ready for use within a few minutes and the measurement provides results within a few seconds.



The Measurement Cycle

The user software communicates with the 1316-2 Refrigerant Leak Monitor using a USB or RS-232 interface. The pump continuously draws air from the sampling point through the air filter to flush out the old air in the measurement system comprising the selected module and two sensors.

Light from the infrared source is sent through the measurement chamber, passed through specialized filters and a reference filter. The absorptions of energy at the specific wavelengths are calculated. Multi-point, multi-temperature factory calibration curves are then applied to the absorption calculations to report the concentration of the individual gases in the chamber.

After passing the N.D.I.R. Sample Cell, the gas is sent to the optional electrochemical sensors and the signals are measured. The measured signals are reported back to the module and the concentration of the gas is reported together with the gas concentrations from the module via the interface connection to the software.

Easy Set Up With an Intuitive Interface

The dedicated user software provides user-friendly procedures to setup the monitor, display measurement data as numeric values or as graphics, and store data on the PC disk while measurements are being made.

Graphical Window

Graphical view allows monitoring of each channel individually. You can easily customize and scale the graph properties.

Process Information in Real Time

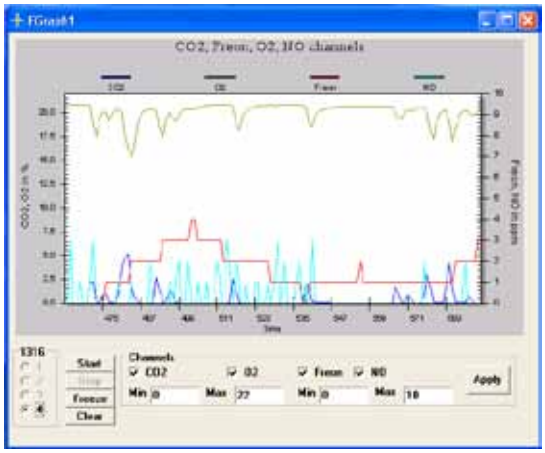
The Numeric window features Real Time display for online monitoring of gas concentrations.

Hardware Requirements:

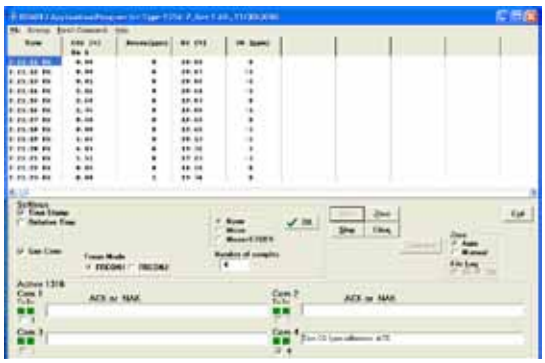
- 1 GHz Pentium processor or better
- Min. 512 MB RAM (min. 2 GB on Windows 7)
- Min. 100 MB hard-disc space available
- One USB port or RS-232 for each 1316 Monitor.

Software Requirements

Windows® XP, Vista or Windows 7



Window showing graphical display of Refrigerant Leaks



Main window showing numeric values.

Technical Data

Measurement Technique	Non Dispersive Infrared to measure CO_2, and 2 Freons (selectable upon order).
Response Time	Response time is specified at a sample flow rate of 800 milliliter per minute using 1 m sample tube ID Ø 3 mm.
Data Refresh Rate	1 sec
Detection Limit	CO_2 . . . . . 100 ppm R22..... 4 ppm R134A..... 4 ppm R404A..... 4 ppm R407A / R407C..... 4 ppm R410A.....4 ppm R422A / R422D.....4 ppm R507.....4 ppm Further Freons on request
Zero Drift	Zero drift is compensated for by automatic zero calibrations.
Pumping Rate	Gas Inlet flow: 800 ml/min; Zero Reference Inlet: 700 ml/min
Power Requirements	Voltage: 100-240 V AC Power consumption: 40 VA

Dimensions	Height: 140 mm H x 236 mm W x 259 mm D (5.5 in H x 9.3 in W x 10.2 in D) Weight: 3.5 kg
Communication	RS-232 or USB for monitor interfaces. BZ6013 software communicates using either RS-232 or USB.
CE	CE-mark indicates compliance with EMC Directive and Low Voltage Directive.
Safety	EN61010-1. 2nd (2003): Safety requirements for electrical equipment for measurement control and laboratory use.
EMC	EN61326-1 (2003) Electrical equipment for measurement control and laboratory use-EMC requirements.
Environment	Altitude up to 3,000 m (10,000 ft) Operating Temperature: 5 to 40°C Storage Temperature: -20 to 70°C Humidity: up to 90% Relative humidity, non condensing Pollution Degree II
Enclosure	IP20

Specifications

Measurement Method	Gas	Resolution	Measurement Range	Accuracy	Precision
VM0101A Module	Freon (R134a as default)	1 ppm	1 to 100 ppm	±10 ppm abs.	±10 ppm abs. or ±10% rel.
			100 to 1,000 ppm	±10% rel.	
			1,000 to 10,000 ppm	Unspecified	Unspecified
	CO_2	0.01%	0.01 to 2%	±0.3% abs. or ±3% rel.	±0.3% abs. or ±3% rel.
			2% to 20%	±5% rel.	

Accessories

Ordering Information

The INNOVA 1316-2 is delivered with all calibrations.

Further Freons available on request. Two Freons should be specified when ordering the 1316-2. If only one Freon other than R134A is specified, the second gas will be R134A as the default.

Accessories

VF0007A..... Fuses 1.6A T
WL0816 ..... RS-232 interface cable
UD5091A..... Inlet filter assembly
BE6021 ..... Instruction Manual for 1316-2
BZ6013 ..... User Software Mains Cable
AT2177 ..... PFTE tubing 4 meters
AM0001A.... 1.8 m USB cable

Optional Accessories

7950..... LumaSoft Gas Multi Point Software

AF0614 ..... PFTE tubing
UA1365 ..... in line Genie Membrane separator
UA0381 ..... Calibration
UD5091A..... Inlet filter assembling
DS2306 ..... Inlet filter
DS0790 ..... Zero ref. filter

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