CPC UK

IR-em2

Infrared Aspirated Environmental Monitor

Qualified for **Energy Technology List**
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IR-em2

Infrared Aspirated Environmental Monitor

The IR-em2 offers intelligent, reliable and accurate gas monitoring for a wide range of HCFC and HFC refrigerants together with Carbon Dioxide and Ammonia.

Exclusive to the IR-em2 is the ability to monitor each zone individually for specific refrigerants therefore enabling HFC's/CO2 or ammonia/CO2 to be sampled on subsequent channels from a common IR-em2. Its high sensitivity and selectivity ensures gas leaks are detected at the earliest opportunity, therefore reducing unnecessary losses.

Common leak, spill and fault relays together with individual zone relays enable easy integration of the IR-em2 into alarm and emergency ventilation systems.

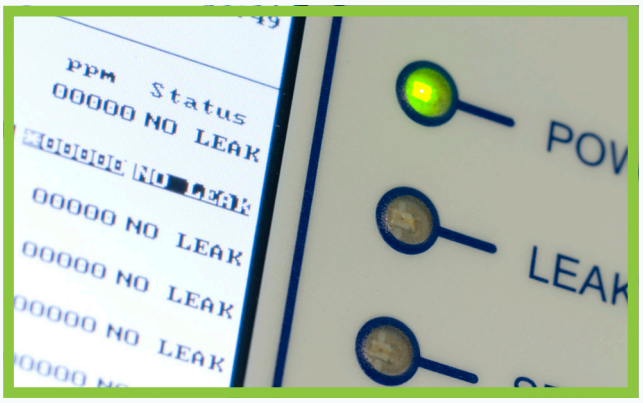
Development

CPC (UK) have supplied infrared based refrigerant leak detection equipment since 1997 when the IRLDS was launched. This has subsequently been superseded by the 8 and 16 channel IR-em2 which was launched in 2010.

In 2014 the 32 channel IR-em2 has been released. During this period ancillary equipment which includes the remote display have been developed to fulfill customer requirements. Product development continues as we strive to improve our product and provide more versatility.

Features at a glance

- Detects HCFC's, HC's, HFC's, CO2 and ammonia
- 8, 16 and 32 Channel models
- Simple 6 key user interface with password protection
- Individual zone naming and alarm thresholds
- Optional fail-safe relay alarm operation
- Self diagnostics detect system faults
- Highly selective to minimize issues from cross sensitivity
- RS485 Modbus RTU + XML & SNMP communication protocols supported
- On-board web server enables viewing and configuration from web browsers such as Internet Explorer & Mozilla Firefox



Zone Based Operation

The IR-em2 is an aspirated gas monitoring system with the ability to monitor up to 8/16/32 zones independently. The system uses a high capacity vacuum pump to sequentially sample air from potential leak locations up to a distance of 150m. Air samples are sucked through 6mm O/D colour coded pipe back to the IR-em2 where it passes through a valve manifold and water trap arrangement before entering the sample cell where the analysis is conducted.

The result of the analysis is displayed clearly on the backlit LCD screen together with the associated zone name. Historic data from previous measurements is retained on the system to enable technicians to identify leak patterns and rectify problems easier.

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Self Diagnostics

The airflow is constantly monitored and if it drops below an acceptable level that may impair the operation of the system, a fault condition is initiated. In addition, a daily-self test is conducted to verify the internal pneumatics of the IR-em2, and if a problem is identified a fault is displayed. All fault conditions are logged to enable problems to be quickly & easily resolved.

Alarms

Each zone can be assigned up to three alarm thresholds, leak, zone and spill. The leak and zone alarms have an optional delay which requires refrigerant above the alarm threshold to be measured over a number of consecutive cycles before being flagged whilst the spill alarm is instantaneous. In the event of a leak, spill or fault occurring, the corresponding LED and relay will be energised. Each of the zones has a dedicated relay which is energised in the event of a zone alarm. All relays can be configured fail-safe and have both N/O and N/C volt free contacts.

High Accuracy

The high sensitivity and selectivity of the unit is achieved as the IR-em2 uses the unique 'infrared signature' to identify the refrigerant and eliminate nuisance alarms from potential contaminant gases. As a result the IR-em2 can accurately detect refrigerant concentrations in parts per million levels. To maintain this high accuracy the system also compensates for changes in ambient pressure and is able to determine and alarm if blockages occur during operation which can prevent refrigerant leaks from being identified.

Interfaces

Remote visibility can be provided via the RS485 or Ethernet interface. Modbus RTU and Woodley Protocols are supported on the RS485 interface whilst the Ethernet connection supports SNMP, XML and HTML protocols.

Therefore using a PC with a standard web browser, operators can remotely view and interrogate the IR-em2 either locally or across a LAN or WAN.

CPC (UK) also offers a range of ancillary equipment to interface with the IR-em2 to provide remote visibility and indication of refrigerant leaks and system faults.

Technical Information	
Weight	18kg
Refrigerants	Ammonia, CO2, R22, R404a, R507a, R407a, R410a, R422d (Other refrigerants available upon request).
Operating Environment	Ambient 0˚C to 40 ˚C < 95%rh
Fault/Leak/Spill Relay Rating	SPDT 24 Volt AC 2 amp
Zone Relay Rating	SPDT 24 Volt AC 2 amp
Power	230V 120va (optional 110V AC)
Classification	CE

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Infrared Leak Detection System

There are considerable environmental concerns about the Global Warming Potential of HFC refrigerants which have been extensively installed in recent years to overcome the previous ozone depletion problems associated with CFC and HCFC refrigerants.

It is only when these refrigerants leak from the system does the environmental damage occur. Therefore, installing an IR-em2 will provide an early warning of these problems and enable customers to conform to the relevant standards & specification which include EN378:2008, 'F' gas Directive & EH40.

As well as the environmental impact of lost refrigerant there are also financial and personnel safety implications.

Insufficiently charged refrigerant systems operate inefficiently, and therefore may result in stock losses, both events can be minimised with the installation of an IR-em2 system. Further more there are health risks associated to personnel exposed to leaking refrigerants of which the vast majority is odour free.

Therefore installing an IR-em2 enables our customers to protect their workforce and the environment whilst benefiting from a substantial return on investment.

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