

**NDIR REFRIGERANT SENSORS
FOR REFRIGERATION AND AIR CONDITIONING TECHNOLOGY**



REFRIGERANTS MEASUREMENT

NDIR-SENSORS – REDUCED YOUR COSTS - IMPROVE YOUR EFFICIENCY

Refrigerants such as R134a, R125, R404a and many others used in refrigerants are combustible and extremely harmful to the environment. In accordance with the EU F-Gas Directive, refrigerating systems must therefore not only fulfil stringent leakage control requirements, but must also be equipped with a leak detection system for HHC refrigerants.

Early detection of leaks is the only way to protect human beings and the environment by preventing the accidental release of coolants and refrigerants.

Continuous measurement of refrigerants in the ambient air also prevents the system from running dry, minimising downtimes and subsequent costs. With a measuring range of 1000 ppm or 2000 ppm,

low-maintenance NDIR sensors from smartGAS detect even minute refrigerant quantities – selectively and reliably. Their use in air conditioning technology can be a decisive competitive advantage. No matter what concentration has to be measured under what conditions – smartGAS offers the suitable NDIR sensor.



FROM OEM SENSOR
TO THE COMPLETE MEASUREMENT UNIT



R22
R123
R125
R134a
R404a
R407c
R407f
R410a
R448a
R449a
R452a
R507
R513a
R1234yf
R1234ze

YOUR BENEFITS

- | | | |
|-----------------------|---|--------------------------------------|
| Highly selectiv | → | low cross sensitivity to other gases |
| Long lifetime | → | up to 10 years |
| Fast response time | → | $t_{90} < 12s$ |
| Small drift over time | → | long calibration cycles |
| Low cost of ownership | → | sustainable technology |

IDEAL FOR

- Air conditioning systems
- Industrial refrigeration
- Process control
- Cold storage
- Supermarket

SMARTGAS – SMART SOLUTIONS FOR GAS MEASUREMENT



» *Leading gas measurement technology since 2005*

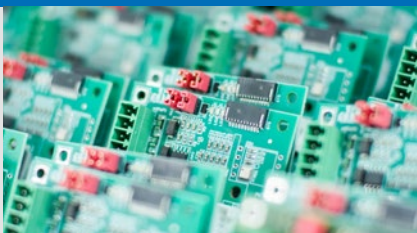
» *Specialized in NDIR gas sensing technology*

» *Solution provider for customer specific systems*



» *Production, calibration and R&D all located in Germany*

» *ISO 9001:2015 certified*



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