



THE EXACT

ODORIZATION RATIO

FOR EVERY

CUBIC METER OF GAS

DATA SHEET



» PRECISION, EFFICIENCY, RELIABILITY

REGAS developed, designed and built this system with the aim of guaranteeing the highest technological and safety standards in odorization control.

The most recent development of the Omnicube system, **INGRID is an internationally patented technology** (PD 2006 000270), wholly developed by Regas to ensure odorization uniformity in any condition, also with highly variable and very low flow-rates. This thanks to the micro-injection system with intelligent metering control (ISOPROFILE).

The advanced sensors, auto diagnostic system, compact design and increased sensitivity of the ISOPROFILE algorithm make Ingrid a technology extremely adaptable to the most varied systems. The real time control of the odorant injected through the high-precision magnetostrictive level sensor and multi-compatible remote control system also guarantee maximum peace of mind in controlling the odorization process, also in complex systems and with distant inlet points.

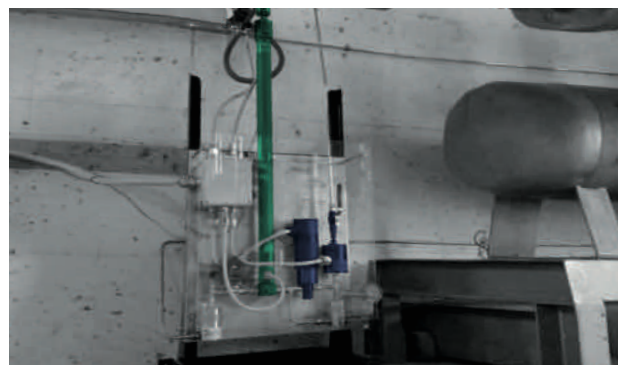
» EXPERIENCE AND TECHNOLOGY

On the strength of over 15 years' operation in the natural gas odorization sector and with **over 1,200*** Omnicube systems under its belt, with **INGRID** Regas raises the standards already set out with the previous versions of the Omnicube automatic odorization system.

With its various configurations – both pneumatic and electrical – born in compliance with the different international standards, Ingrid confirms to be the odorizer most appreciated by the major utilities operating in the gas distribution market.

- **Exact odorization** for each cubic meter of natural gas
- Odorant measurement with **electronic high-definition magnetostrictive level**
- Strong and essential mechanics

- Can be supplied by a continuity group or photovoltaic system
- Integrated and multi-compatible control system
- Available in 12 bar (174 PSI), 20 bar (290 PSI) versions as well as in the 100 bar HP (1450 PSI) version.



**updated to May 2015*

» MAIN FEATURES

» PNEUMATIC SECTION

2 +1 liquid phase filters
Liquid phase solenoid valve
Gas phase solenoid valve
Magnetostrictive level sensor and still-pipe
Bypass mode automatic switching valve

» MATERIALS

Panel: stainless steel A304 and A316
Seals: PTFE and Viton
Injector unit: stainless steel A304
Still-pipe: stainless steel A304
Electronic level: transducer housing A304, sensor tube and float A316
Solenoid valves: stainless steel A304
Bypass switching valve: A316
Fittings: stainless steel A304 and 316

» WEIGHT

30 kg / 66lb

» PRESSURE RESISTANCE

Available in 12 bar (174 PSI), 20 bar (290 PSI) versions as well as in the 100 bar HP (1450 PSI) version.

» MAX ODORIZATION CAPACITY

1 injector: 2 l/h (0,53 gal/h)
2 injectors: 4 l/h (1,06 gal/h)
HP version: up to 40 l/h (10,57 gal/h)

» OPERATING TEMPERATURE

-20°C ÷ +60°C (-4°F ÷ +140°F)

» INSTALLATION

Wall mounted or Frame mounted
In both cases the collection tank is incorporated

» LIQUID PHASE FILTER

Cartridge: stainless steel A305 printed
Filter capacity: 60 µm
Filter surface: 3 x 2050 sq. mm

» INTEGRATED ELECTRONIC LEVEL

Magnetostrictive technology
Accuracy: up to ± 0.5 mm
Resolution: up to 0.1 mm
Loop powered

» LIQUID PHASE AND GAS PHASE SOLENOID VALVES

Phase surface:

- Standard version: 5 sq mm
- HP version: up to 200 sq mm

Type: Solenoid valve
Power: 12/24V DC

» PRESSURE GENERATOR

Magnetic drive pump
Seal free
Gears in Peek
Power: 12/24V DC

» INJECTOR UNIT

Variable openings
Up to 50 cycles per second
Power: 12/24V DC

» BYPASS MODE VALVE

On / off mixed operation
Operation without gas motor
Power: 12/24V DC

» CONNECTIONS

Tank:

- Liquid phase: 10 mm with Twin Ferrule fittings
- Gas phase: 8 mm with Twin Ferrule fittings

Gas pipe: 1/2" male thread gas

» OPERATING MODES

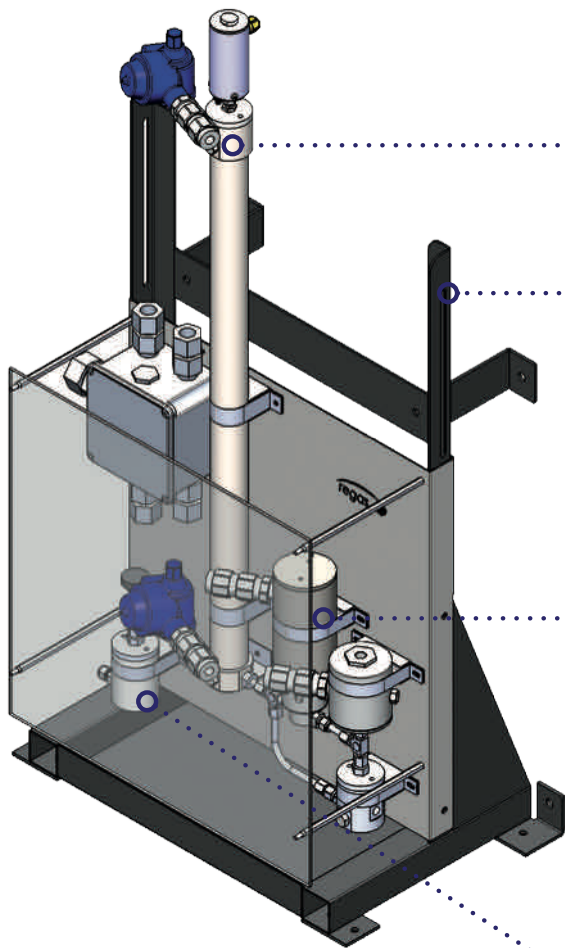
Running
Adsorption Bypass Odorization (standby)
Maintenance manual mode

» COMPATIBILITY

Pneumatic: Zone 1, II Ex 2G
Control electronics: area not classified

» REGULATORY COMPLIANCE

EN 60950, EN 61000-3-2, EN 61000-3-3, EN 55022,
EN 50082-1, 73/23/CEE, 89/336/CEE, 999/5/EC,
UNI-CIG 9167:2009, UNI-CIG 9463:2012,
UNI-CIG 9571:2012, UNI-EN 12186:2006
DM 16/04/2008



INTEGRATED ELECTRONIC LEVEL

The system includes a magnetostrictive electronic level measuring the residual quantity of odorizing liquid in the tank and checking the exact quantity delivered to the network. This guarantees perfect planning of the odorizing loads and accurate control and recording of the quantity of product delivered. The standard level is 800mm, an ample measure that therefore allows immediate adaptability to different types of systems.

COMPACT AND VERSATILE SUPPORT SYSTEM

The base frame is characterized by small dimensions and both floor and wall installations are extremely easy. This allows Ingrid to be installed also in reduced spaces and difficult environments. The height-adjustable support system allows immediate adaptability to a variety of types of systems.

HIGH-EFFICIENCY PRESSURE GENERATOR

The micro-pump boasts extremely low electrical consumption and its mechanical design eliminates the possibility of any malfunction. This guarantees perfect system functionality in a variety of systems and also with a photovoltaic supply.

ODORANT DOUBLE ACTIVE FILTERING

Odorant filtering system at the injector inlet. An innovation that doubles the filtering surface and makes maintenance easier. This keeps the product entering the system clean, increasing efficiency over time.

SIZE STANDARDIZATION

In general, the level and components have been unified, guaranteeing the applicability of the system to various sizes of tanks and types of system. This allows total interchangeability of spare parts and general efficiency in managing machines.

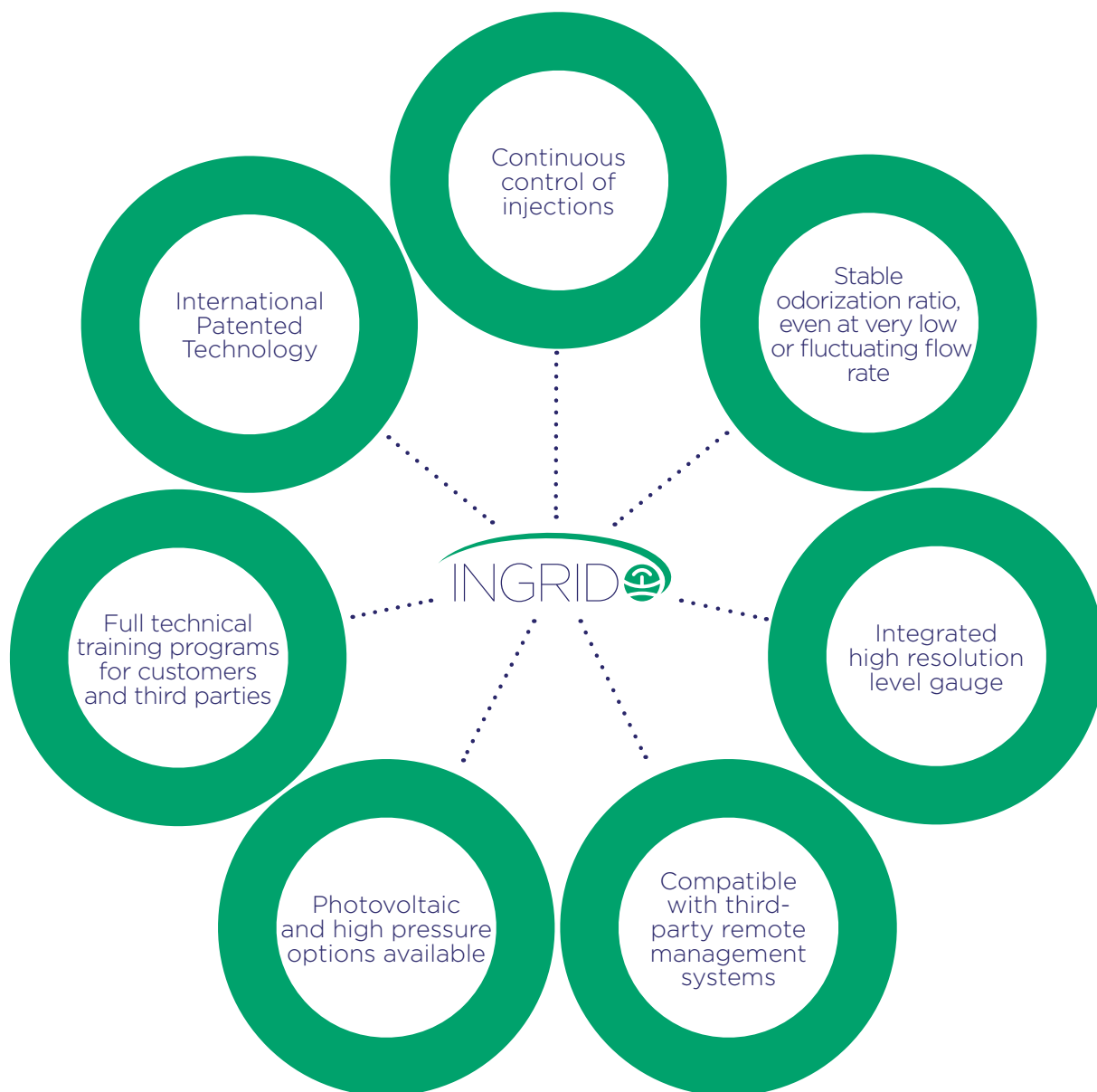
INNOVATIVE BACKUP SYSTEM

In case of an anomaly, the system switches to adsorption bypass mode automatically or to the backup injection system (option) through a normally open electrical actuator. This increases the level of process reliability, eliminates any gas dispersion into the atmosphere on switching and simplifies system management.

TOTALLY RENEWED CONTROL SYSTEM

The system control devices incorporate software wholly developed by REGAS, based on Modbus RTU open protocol and boasting a high-speed communication module based on an ethernet interface and GSM, GPRS or 3G modem (option).

The system can anyway communicate also using different protocols (option), opening Ingrid to the total integration with various types of third parties' SCADAs.



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