INGRID 2.0

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- Direct odorization system able to guarantee the **exact quantity of odorant per cubic meter of natural gas** provided
- Integrated **real-time remote control** system
- Maximum **compatibility with third-party SCADA** system
- Integrated high definition **electronic magneto strictive** level indicator
- **Continuous control** of the odorant inserted
- **Remote** and local **regulation** of the odorization rate
- Can be combined with **any type of tank**

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- INGRID is generally installed at the **same height and pressure** as the service reserve tank
- Tanks to the high accuracy of **the integrated magneto strictive level** indicator, the system is able to measure and calculate the **exact volume of the injected Odorant**
- In addition, the system is able to track the **exact amount of remaining** product in the **main tank**
- INGRID **tracks** all working **parameters every 15 minutes**

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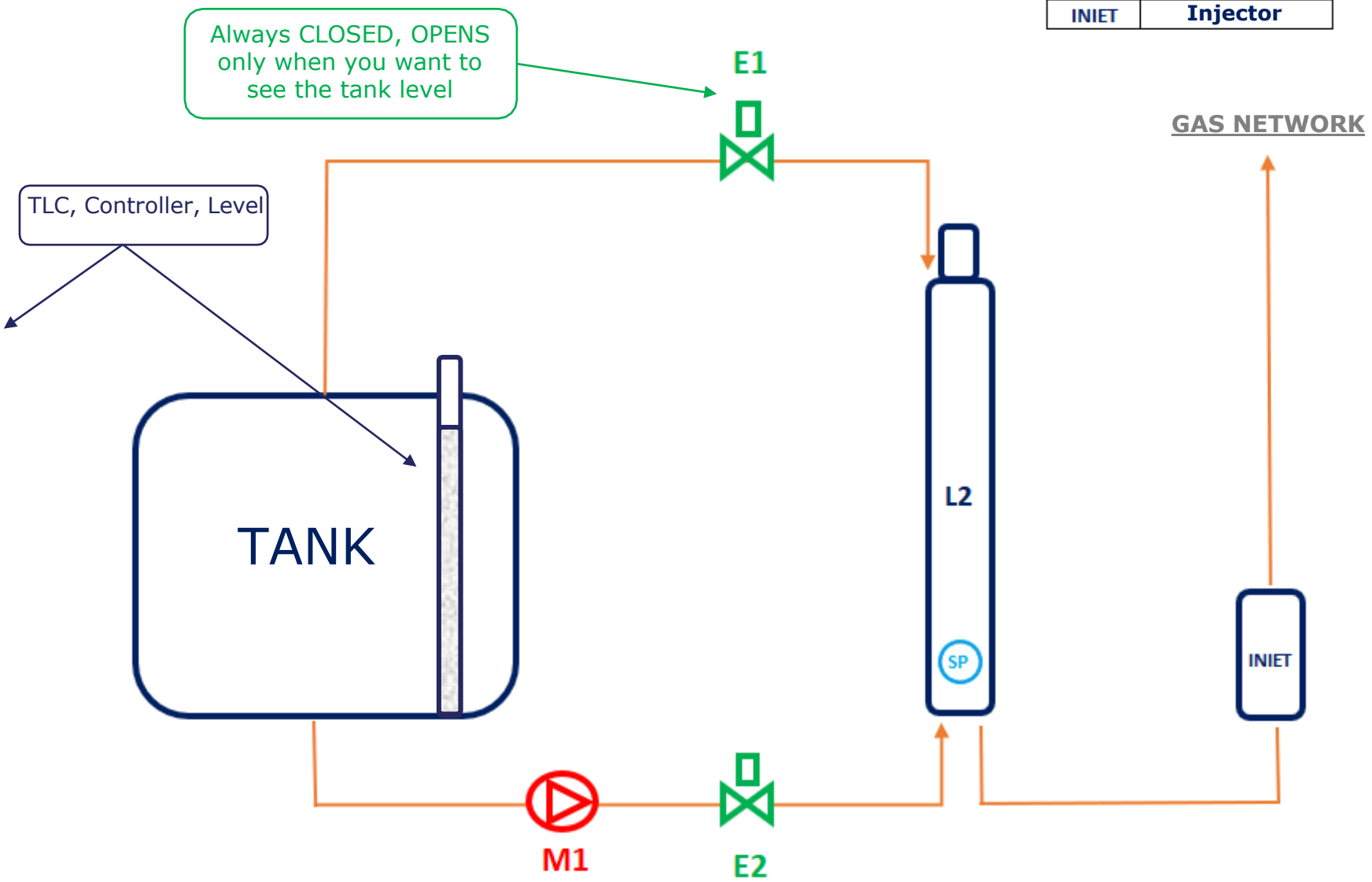
Version_1

KEY-LINE

M1	Pump Engine
E1	Electrovalve 1
E2	Electrovalve 2
L2	Level 2
SP	Pressure Probe
INIET	Injector



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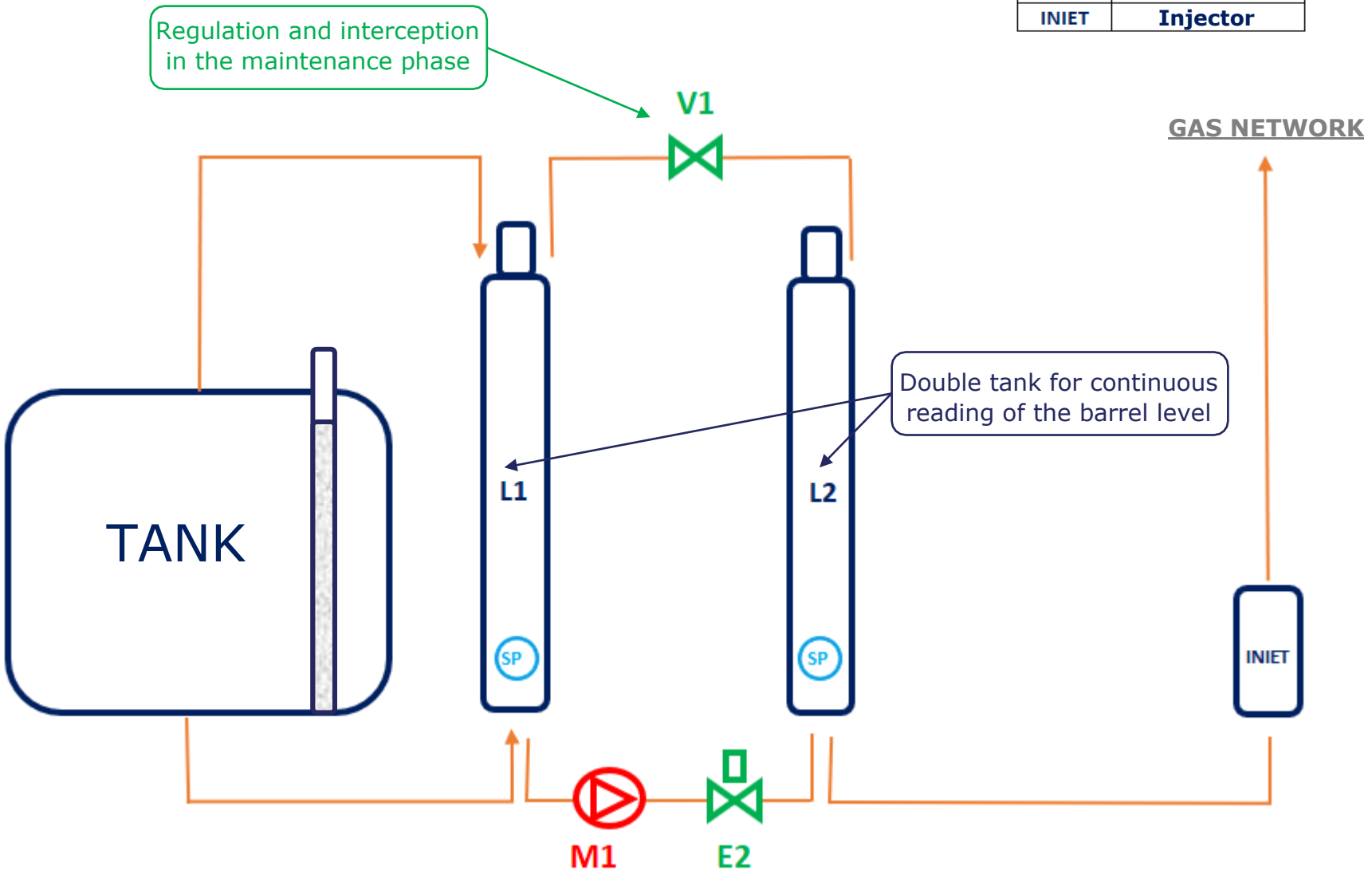
Version_2

KEY-LINE

M1	Pump Engine
V1	Valve 1
E2	Electrovalve
L1	Level 1
L2	Level 2
SP	Pressure Probe
INIET	Injector



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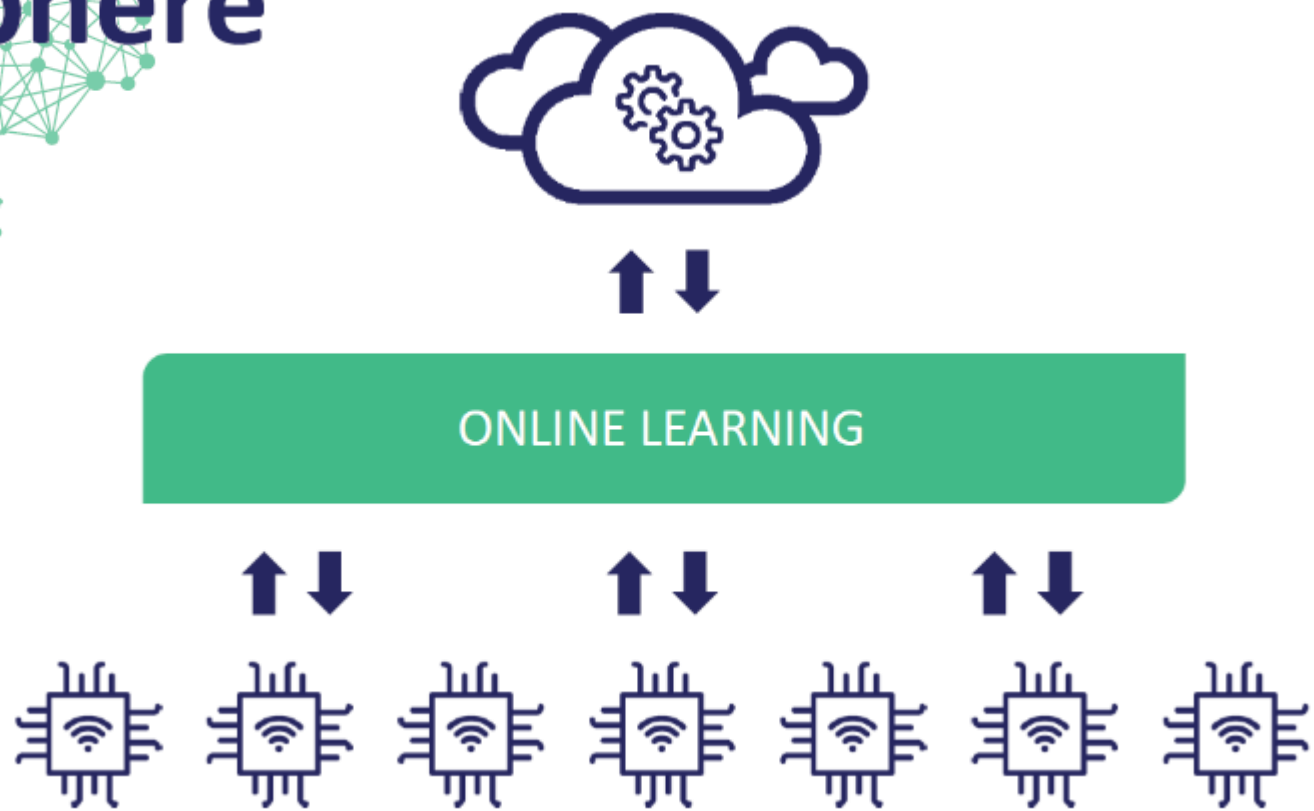
Advantages INGRID 2.0

- Allows an even more **continuative and homogeneous** odorant injection
- **It is also possible to odorize** during **the recharge of the still pipe** L1&L2 and **barrel**
- **Brushless Engine** (has no electric contact) **lower mechanical resistance**, eliminates the possibility that **sparks form** and greatly **reduces** the need of **maintenance**
- Available in **Uninterruptible Power Supply** (UPS) option for alimentation **(≃ 3h)**
- User-friendly **Electric installation** (**n2° wires 24PIN**)

Vantaggi INGRID 2.0

- **Engine** sensors
- **Level** sensors
- **Pressure** sensors
- **Fluid Temperature** sensors
- **Cloud Database**
- Components' indipendence
- **Future Predictive Maintenance:** through the analysis of the data collected by the sensors, you can estimate the "**health state**" of the different components

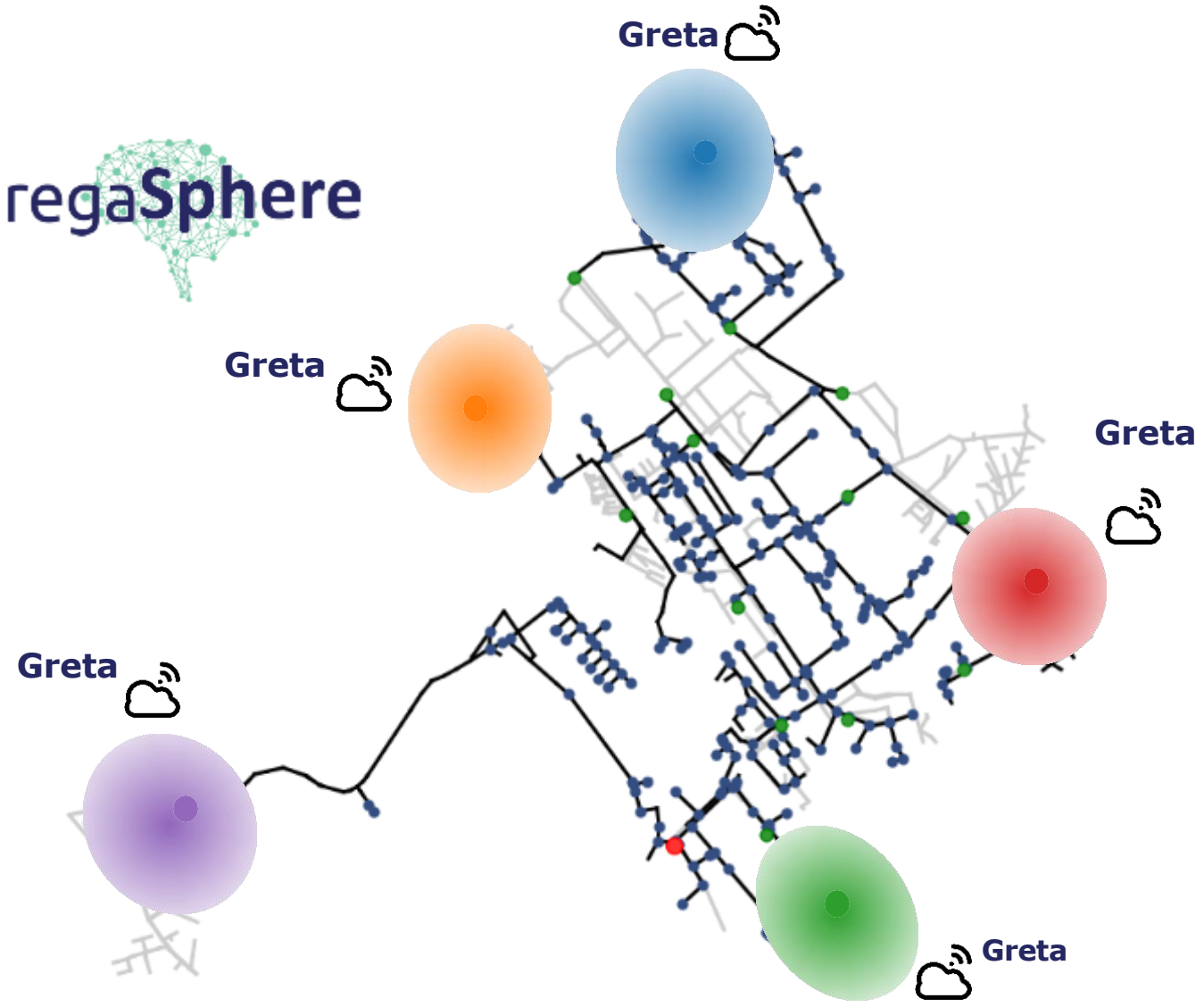


SOFTWARE ROSE

ROSE is a software entirely developed by Regas that **facilitates the digitalization of Gas Networks**

Network analysis via ROSE has allowed the identification of **FIVE zones** that must be monitored to **optimize and control the odorization level** in the entire distribution network.

The **FIVE zones** refer to **GRF and/or IRI** in which will be **installed sensors** necessary for the **control of the rate of odorization.**



SOFTWARE ROSE

Consumption predictions IPRM-GRF-IRI

ROSE is able to estimate the hourly consumption of the next day

Estimated calorific value

The integration of ROSE with GRETA allows to estimate the calorific value in the various points of the network

Remote control

ROSE has the ability to interact with tools in the field and therefore allows a remote control of the network

Representation of the network

The graphic interface of ROSE, combined with the tools in the field, allows to have a detailed and continuous representation of the behaviour of the distribution network

Continuous analysis of the instrumentation

ROSE's learning algorithms allow to report possible malfunctions and/or abnormal behaviours in the instrumentation field