

WINECAP™ is a modular system for the acquisition, storage, and transmission of data, acquired by the wireless sensor network, to adjustment and regulation systems. A solution to meet the needs of continuous monitoring of physical quantities allowing optimization and adjustment operations.

The hearts of the system are the **MWDG** (Modular Wireless Datalogger Gateway) gateways, who coordinates the WSN, historicize and make data available using the [www.winecap.it](http://www.winecap.it) Service Center.

The **MWDG** gateways are equipped with MODBUS RTU serial output to export data to external third-party devices (PLC, etc.). Radio range may be extended using radio **repeaters**, up to 50 **probes/dataloggers** and 32 **routers**.

Using the provided **WineCapManager** (Data Collection and Export Tool) Windows™ software, user can:

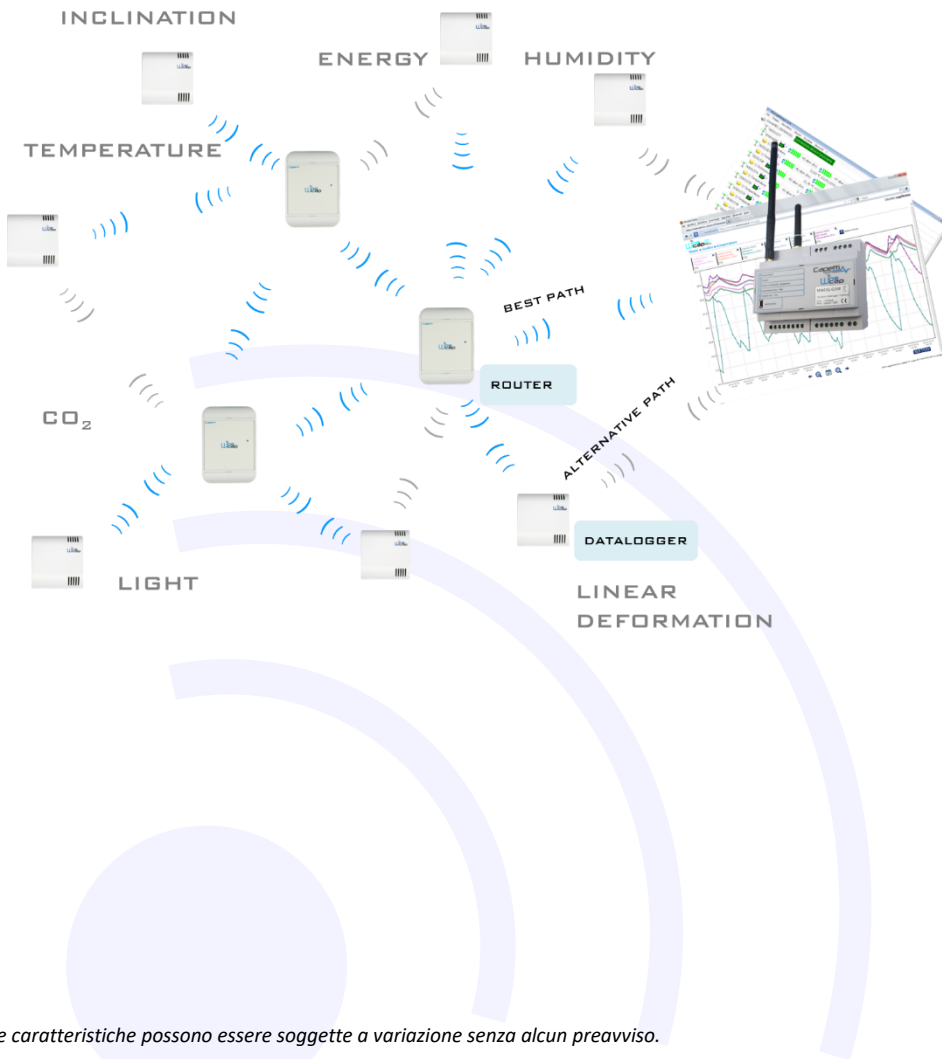
- Configure the system, adding and removing **probes/dataloggers** and/or modules to the wireless sensor network.
- Display, in real time, on a PC screen the measures sampled by **probes/dataloggers**
- Verify, in real time, the system status, included the radio signal and the battery level

The [www.winecap.it](http://www.winecap.it) Service Center is hosted in an external server-farm 24/7 monitored, allows Internet data access, every time and everywhere and data integration in third parties software using Web Services functions.

Moreover, with email alert messages the **Service Center** informs involved subjects when needed. The notify feature is related to the data transmission service offered by the selected provider and by the operability of mail servers.



## WINECAP™ Sensor Network



### Ultra-Low Power Wireless Solutions

Application areas:

- Energy Monitoring
- HVAC Thermoregulation
- Operative Energy Certification
- Energy Cadastre Creation
- Environmental Requalification
- Energy Efficiency
- Energy Consumption Measurement
- Building/Plants Energy Performance
- Museums/Archaeological sites Monitoring
- Geotechnical and Structural Monitoring

WINECAP™ is easy to install and and easy to use:

- WIRELESS, no cable needed
- MODULAR, radio **repeaters** available suitable for large deployments (ex. Hospitals)
- INTEGRABLE, with thermoregulation and remote-controlled systems, BMS HVAC and other acquisition systems
- SIMPLE, data are remotely available using a web browser web, no software needed
- SAFE, alarm thresholds may be set for each channel, to notify, by email through the **Service Center**, occurred overcoming

Le caratteristiche possono essere soggette a variazione senza alcun preavviso.



MODEL Name	Digital Inputs	Realy Outputs	Data Recording	Service Center	Connections	Modbus
MWDG-GSM	-	-	✓	✓	GSM/GPRS	RS485*
MWDG-GSM-B	-	-	✓	✓	GSM/GPRS	RS485*
MWDG-GSM-M1	-	2	✓	✓	GSM/GPRS	RS485*
MWDG-GSM-M2	-	2	✓	✓	GSM/GPRS	RS485*
MWDG-MB	-	-	✓	-	-	RS485
MWDG-ETH	-	-	✓	✓	ETHERNET	RS485* / RTU over TCP
MWDG-ETH-B	-	-	✓	✓	ETHERNET	RS485* / RTU over TCP
MWDG-4DI-GSM	4	-	✓	✓	GSM/GPRS	RS485*
MWDG-4DI-MB	4	-	✓	-	-	RS485

- \* only if I/O expansion modules are not used:
- **EXP4IO-00 model** → four 0-10V Analog Inputs
  - **EXP4IO-66 model** → four NTC10K Analog Outputs (emulation)

Different available configurations, make the **MWDG** gateways very flexible. On the front panel, diagnostic led are available, to verify the operative status.

Models equipped with GSM/GPRS module are capable to:

- Automatic Internet connection, at programmable timeslots, to data upload towards **Service Center** or third-party servers using FTP file sending.
- Point-to-point remote connection, using the **WineCapManager** software with an external modem (*modem product code: M101*).
- Terminals for 12V lead rechargeable backup battery (*not included*), to manage energy black-out occurring situations.

The **MWDG-4DI-GSM** is equipped with four digital inputs to directly connection towards counters (*electrical, thermal, gas, water...*) as use as remote reading systems.

If present, relays outputs allow field's feedbacks on wireless network malfunctions and/or alert thresholds overcoming.

**MWDG-ETH** use existing networks to send data on Internet with Ethernet interfacing, allow data download on **Service Center** and the access to MODBUS PLC registry using MODBUS RTU over TCP (*virtual com port*) protocol.

Simultaneous use of MODBUS LAN and MODBUS on 485, the FTP server data upload and the TCP MODBUS protocol are not available.

### Modularity (with EXP4IO module)

It's possible to expand inputs and outputs of **MWDG** gateways using **EXP4IO** modules up to four units reaching a total of 16 I/O.

Each **EXP4IO** module is provided with 4 I/O (*configurable in pairs*) selected from:

- 0-10Vdc/0-5Vdc/4-20mA Analog Inputs
- Digital Inputs
- NTC Inputs
- 0-10Vdc Analog Outputs
- NTC10K Analog Outputs (emulation)
- Open Drain Digital Outputs

### Main Features

- Gateways can store up to 2.500.000 samples
- Radio range of 6Km on sight extensible using battery powered repeaters
- Network forming with automatic routing algorithm
- 868MHz ISM band (*Industrial, Scientific and Medical*) frequency
- The Web **Service Center** allow access to data without local software
- E-mail alerts from **Service Center**
- Data export in CSV e XLS format

## Technical Information

Power supply	12-24Vdc ( <i>alimentatore non incluso</i> )
Protection fuse	automatico auto ripristinante
Included antennas	<ul style="list-style-type: none"> <li>• Antenna WSN installabile in esterno - cavo 3m (<i>opzione: prolunga 5m</i>)</li> <li>• Antenna GSM</li> </ul>
Power consumption	3 W
Relay terminals charge ( <i>MWDG-GSM-M1, M2 only</i> )	Resistive charge (2 A – 30 VDC)
Radio Frequency	ISM 868MHz
Connections	USB, RS485 MODBUS, Relay, GSM/GPRS ( <i>depending by model</i> )
Operating Conditions	<ul style="list-style-type: none"> <li>• Temperature: -20 ÷ +60°C</li> <li>• Humidity: 0 ÷ 90% (<i>without condensate</i>)</li> </ul>
Sealing	IP30
Input signal ( <i>MWDG-4DI-GSM only</i> )	Clean contact ( <i>dry contact</i> ) / open collector ( <i>Max 5Vdc</i> )

### Modbus Connection

**MWDG** gateways are equipped with a serial communication port with MODBUS protocol, on RS485 connection, to export measures towards adjustment systems as PLC, remote control systems or generic telematic devices.

The correspondence between the sampled measures and MODBUS channels is programmable using the **WineCapManager** software.

The features shown may be subject to change without notice.