

**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 parties devices (PLC, etc.). Radio range may be extended using radio routers, up to 40 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, everytime and everywhere and data integration in third parties softwares 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.

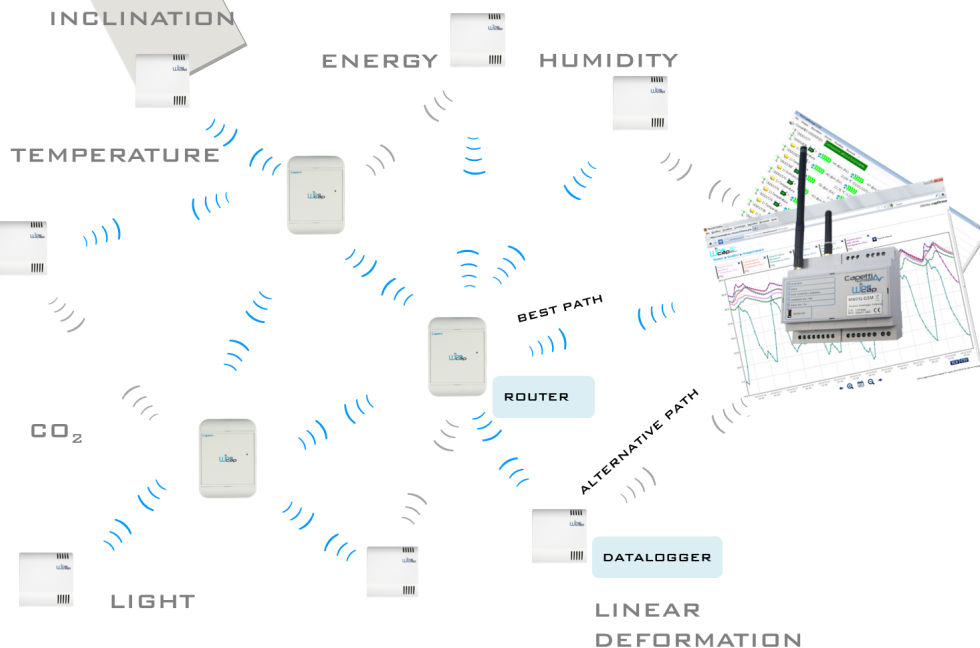
## Ultra Low Power Wireless Solutions

### 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™ Sensor Network

Dynamic and adaptive automatic wireless routing



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

- **WIRELESS**, no cable needed
- **MODULAR**, radio **routers** 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 overcomings

The features shown may be subject to change without notice.

WB0282E Rev.10

MODEL Name	Digital Inputs	Relay 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-WIFI	-	-	✓	-	WI-FI	RS485* / RTU over TCP
MWDG-4DI-GSM	4	-	✓	✓	GSM/GPRS	RS485*
MWDG-4DI-MB	4	-	✓	-	-	RS485

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

The models equipped with GSM/GPRS module are capable to:

- Automatic Internet connection, at programmable timeslots, to data upload towards **Service Center** or third parties 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 allows field's feedbacks on wireless network malfunctions and/or alert thresholds overcoming.

**MWDG-ETH** and **MWDG-WIFI** use existing networks to send data on Internet with Ethernet or Wi-Fi interfacing. Both versions allows 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/WIFI 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/Os.

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

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

### Main Features

- Gateways can store up to 2.500.000 samples
- Radio range of 300m on sight extensible using battery powered **routers**
- 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

### 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.

\* 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)*)

## Technical Information

Power supply	12-24Vdc ( <i>not included</i> )
Protection fuse	Automatic, self resetting
Included Antennas	<ul style="list-style-type: none"> <li>• External WSN antenna - 3m cable (<i>optional: 5m extension cord</i>)</li> <li>• GSM Antenna</li> </ul>
Power Consumption	3 W
Radio Frequency	ISM 868MHz
Connections	USB, RS485 MODBUS, Relay, GSM/GPRS ( <i>depending by model</i> )
Operating Conditions	Temperature: -20 ÷ +60°C Humidity: 0 ÷ 90% ( <i>without condensate</i> )
Sealing	IP30
Input signal ( <i>MWDG-4DI-GSM only</i> )	Clean contact ( <i>dry contact</i> ) / open collector ( <i>Max 5Vdc</i> )

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