MWDG-GSM-B

Gateway for Monitoring Activities, IOT Applications and BMS (Building Management Systems) Integration

WINECAP™ LuPo WDLS (*Wireless Datalogger Systems*) are modular systems for the acquisition, storage and transmission of data, acquired by the wireless sensor and actuator network (*WSAN*), to adjustment and regulation systems as solution to meet needs of continuous monitoring of physical quantities allowing optimization and adjustment operations.

The heart of the system are the **MWDG** (*Modular Wireless Datalogger Gateway*) gateways, who coordinates the WSAN, historicize and make data available using the *www.winecap.it* **Service Centre**.

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 16 **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 and actuator 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* **Service Centre** is hosted in an external server-farm 24/7 monitored, allows Internet data access, everytime and everywhere and data integration in third parties software using Web Services functions or FSTP files.

Moreover, with email alert messages the **Service Centre** 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.

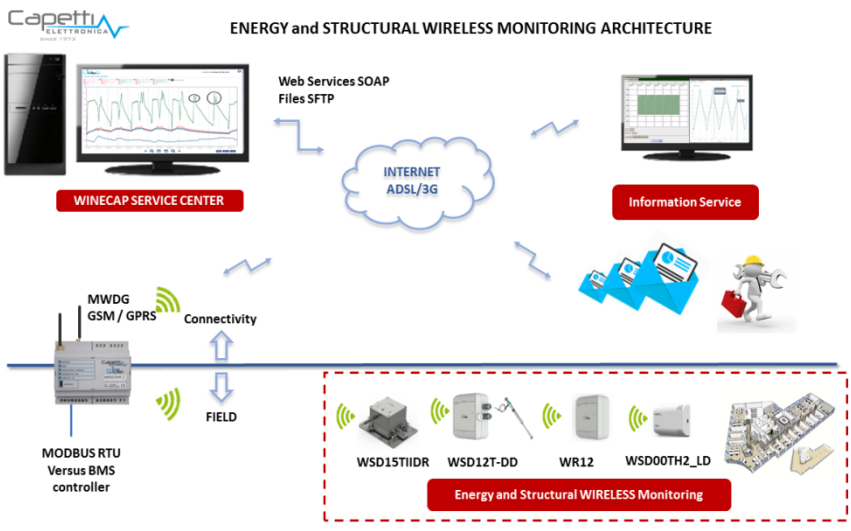
Ultra Low Power Wireless Solutions

Application areas:

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

WINECAP™ Sensor Network

Dynamic and adaptive automatic wireless routing



WINECAP™ is easy to install and easy to use:

- *WIRELESS, no fulfillment obstacles coming from environment or infrastructure*
- *MODULAR, scalable and configurable system, so…FLEXIBLE !!*
- *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 passings*

The features shown may be subject to change without notice.

WB0324E Rev.01
V2.3

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ITEM	Digital Inputs	Relay Outputs	Data Recording	Service Center	Connections	Modbus
MWDG-GSM-B	-	-	√	√	GSM/GPRS	RS485*
MWDG-GSM	-	-	√	√	GSM/GPRS	RS485*
MWDG-GSM-M1	-	2	√	√	GSM/GPRS	RS485*
MWDG-GSM-M2	-	2	√	√	GSM/GPRS	RS485*
MWDG-ETH	-	-	√	√	ETHERNET	RS485* / RTU over TCP
MWDG-ETH-B	-	-	√	√	ETHERNET	RS485* / RTU over TCP
MWDG-4DI-GSM	4	-	√	√	GSM/GPRS	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 use existing networks to send data on Internet with Ethernet interfacing.

MWDG-ETH 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.

Technical Information

Power supply	12-24Vdc (*not included*)
Protection fuse	Automatic, self resetting
Included antennas	• External WSN antenna - 3m cable (*optional: 5m extension cord*) • GSM Antenna
Power consumption	3 W
Radio frequency	ISM 868MHz
Connections	USB, RS485 MODBUS, Relay, GSM/GPRS, 0-10V (*depending by model*)
Operating conditions	• Temperature: -20 ÷ +60°C • Humidity: 0 ÷ 90% (*without condensate*)
Sealing	IP30
Input signal (*MWDG-4DI-GSM only*)	Clean contact (*dry contact*) / open collector (*Max 5Vdc*)

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 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 up to 6Km on sight extensible using battery powered **routers**
- Network forming with automatic routing algorithm
- 868MHz ISM band with FHSS data protection (*11 channels frequency hopping*)
- 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-66** model (*four 0-10V Analog Inputs*)
- **EXP4IO-00** model (*four NTC10K Analog Outputs (emulation)*)

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