GSM / GPRS MODULE WITH MODBUS INTERFACE

GSM/GPRS DEVICE FOR POINT-TO-POINT COMMUNICATION

Z-GPRS s a ModBUS Master module for wireless data acquisition and recording.

It is able to receive and transmit commands, measures and alarms.

Z-GPRS can be used in photovoltaic applications, building automation, telemetry and M2M communication, industrial remote control, remote environmental and energy control.

It works as stand-alone unit or as node of a network. Z-GPRS is also a GSM/GPRS standard modem used without additional programming, with SMS, e-mail and point-to-point communication mode. The GSM module supports serial connections at 9.600 bps and the following protocols: SMTP, FTP, POP3, HTTP through Internet.

GSM ANTENNA
Stylus included, optional external dual band swing

RS232 INTERFACE
Through RS232 port (DB9 connector) the data can be transmitted to a computer (with USB converter) or other serial devices.

PROGRAMMING VIA SMS
Through short message service (SMS) is possible to configure: alarms, status input, output enabling, users list, password, network settings, sending e-mail settings, RTC. Via SMS are also settable several dedicated functions, developable also with the Python® programming by well-experienced users.

RS485 MODBUS INTERFACE
RS485 ModBUS RTU port allows the extension of I/O (for example Z-PC modules) or the connection toward other devices (field probes, network analyzers, inverters etc.)

FRONTAL CONNECTOR
Push / Pull eject mechanism

GSM / GPRS MODEM
Quad band 850/900/1800/1900 MHz

ALARMS MANAGEMENT
Through SMS commands is possible to set an alarm for each digital input and to drive the corresponding digital output (opening & closure of relay).

DIGITAL I/O BUILT-IN
Z-GPRS has 2 digital input (max load 30 Vdc) and 2 digital output (Mosfet, max 50 mA – 50 Vdc) to read status and enable commands

ON/OFF

OTHER REMOTE CONTROL PRODUCTS

Z-RTU
All-In-One Remote Control Unit

EASY GSM
Remote control module GSM/GPRS

M-RTU-GP
Micro RTU for remote control of small plants

M-RTU-PC
Micro RTU for cathodic protection monitoring

ACCESSORIES

External GSM Antenna

Programming cable

USB serial converter

Backplane for power & bus communication

TECHNICAL SPECIFICATIONS

Electrical Specifications	
Power supply	12..40 Vdc o 12..28 Vac (50-60 Hz)
Power consumption	1,2 W
Isolation	1,5 kVac (power supply/input/output)
Status Led	Power supply/ GSM Network
Thermomechanical Specifications	
Operating Temperature	-30..+60 °C
Dimensions	100 x 112 x 17,5 mm (h x d x w)
Connections	• Frontal DB9 Connector • Back IDC10 Connector • Screw clamp max 2,5 mm2 • Antenna Connector SMA standard
Mounting	for DIN rail guide
Communication, Elaboration, Memory	
Communication ports	• integrated RS232, max speed 115 Kbit/s, isolated • integrated RS485, max speed 115 Kbit/s, isolated
GSM / GPRS Modem Quad band	Frequency 850/900/1800/1900 MHz Voice, Data, Short Message Service (SMS) GSM Supplementary Services
Microprocessor	32 bit
Memories	Flash 4 MB 1 MBb RAM
System Protocols	MODBUS RTU master
Digital Input	N°2 isolated channels, with power supply 12.. 30 Vdc, max load 30 Vdc
Digital output	N°2 isolated channels, a Mosfet with common ground, max load 50 mA / 50 Vdc
Configuration	
DIP-switches	Baud rate, parity, serial port, bit stop, termination line
SMS & Alarms	Output & Input, Users list, Network Parameters & RTC
Standard	
Approval	CE
Norms	• EN 301 511 • EN 301 489-1 • EN 301 489-7 • EN 60950

ORDER CODES

Code	Description
Z-GPRS-A1	Remote management of 2DI / 2 DO
Z-GPRS-A2	Remote management of 18 DI / 10 DO
Z-GPRS-B	Remote signal repetition
Z-GPRS-C	Electrical consumption monitoring
Z-GPRS-D	Control of photovoltaic inverters
Z-GPRS-E	Datalogging of analog variables
Z-GPRS-F	Datalogging of pulse output meters
PM002490	RS232 Programming Cable (DB9M – DB9F)
S117P	Handheld RS232-TTL-RS485 / USB converter
A-GSM	External GSM Antenna dual band swing, cable 3,2 m
Z-PC-DINAL2-17.5	Backplane, head + 2 slots (for module with depth of 17,5 mm)
Z-PC-DIN2-17.5	Backplane, 2 slots (modules 17,5 mm width)
Z-PC-DIN8-17.5	Backplane, 8 slots (modules 17,5 mm width)

Code	Description
Z-D-IN	5-CH digital input ModBUS RTU / RS485
Z-D-OUT	5-CH digital output (relay) ModBUS RTU / RS485
Z-10-D-IN	10-CH digital input ModBUS RTU / RS485
Z-10-D-OUT	10-CH digital output (mosfet) ModBUS RTU / RS485
Z-D-IO	6-CH Digital input, 2-CH Digital output, ModBUS RTU / RS485
ZC-24-DI	24-CH digital input ModBUS / CANopen
ZC-24-DO	24-CH digital output ModBUS / CANopen
ZC-16DI-8DO	16-CH digital input / 8-CH digital output ModBUS/CANopen
Z-4AI	4-CH analog input V/I ModBUS RTU / RS485
Z-8AI	8-CH analog input V/I ModBUS RTU / RS485
Z-3AO	3-CH analog output V/I ModBUS RTU / RS485
Z203	Single Network Analyzer, ModBUS RTU / RS485
S203TA	Three-phases Network Analyzer ModBUS RTU / RS485

Available applications match codes in the table. Z-GPRS can be interfaced with SENECA I/O modules and with other ModBUS RTU devices. Moreover the soft logic on-board may be customized: please ask more information about it to SENECA commercial department (sales@seneca.it).

GSM/GPRS modem with advanced functions

Z-GPRS

SENECA

A

Z-GPRS an works as remote alarms manager, events or digital contacts sent through SMS or e-mail.
Any alarm information (as level threshold, pressure, flow, temperature, power fault etc.) will be sent immediately. This configuration allows also enabling of built-in digital outputs through SMS or e-mail. The output channels can be connected to devices in order to turn ON / turn OFF pumps, valves, electrical motors etc.

DIGITAL CONTACTS REMOTE MANAGEMENT

16 CH Digital input / 8 CH digital output
ZC-16DI-8DO

Z-GPRS

SMS / E-MAIL

Modbus

Application	Hardware configuration	Signal types	
		Digital inputs	Digital outputs
Remote management of 2DI / 2 DO	Z-GPRS-A1	2 (built-in on Z-GPRS)	2 (built-in on Z-GPRS)
Remote management of 18 DI / 10 DO	Z-GPRS-A2 ZC-16DI-8DO	18	10

B

This application allows signal repetition between two independent points not connected through cable or radio systems. Signal transmission is active in 3 modes.
SMS Transmission: digital signal repetition by SMS sending from **Z-GPRS** Master to **Z-GPRS** Slave.
Point-to-Point connection: analog or digital signal repetition at small speed rate.
Always-on GPRS connection: analog or digital signal repetition. The benefit of this solution is that the system does not need a mobile phone SIM card with static IP address, a standard SIM card is enough.

REMOTE SIGNAL REPETITION

Z-GPRS   **Z-GPRS**

SMS

Application	Hardware configuration	Signal types	
		Digital inputs	Digital outputs
Remote signal repetition	Z-GPRS-B I/O modules (Z-4AI, Z-3AO, Z-D-OUT…)	5, 10, 24	4, 8

C

Z-GPRS can read as well electrical parameters from network analyzers with Modbus interface. The Master function allows the real time recording, the data logging inside the internal memory and SMS / e-mail sending enabled by prefixed scheduling or on event. **Z-GPRS** control parameters such energy, current, voltage, cosΦ, frequency, active/reactive/apparent power etc. It's the ideal monitoring solution for pumps, electrical motors, electrical devices etc.
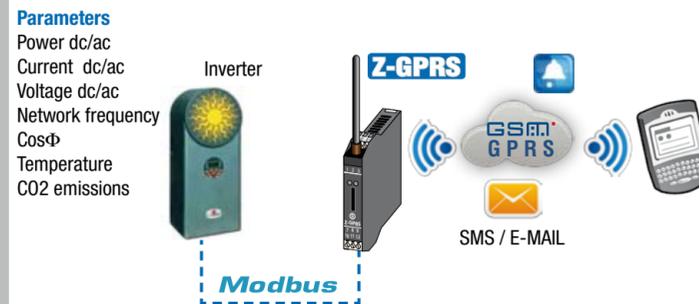
ELECTRICAL CONSUMPTION MONITORING

Z-GPRS

3-phase Network Analyzer
S203TA

SMS / E-MAIL

Modbus

Application	Hardware configuration	Signal types	
		Digital Inputs	Digital Outputs
Electrical consumption monitoring	Z-GPRS-C S203TA	-	-

D

Thanks to the ModBUS serial interface, **Z-GPRS** can be connected to a photovoltaic inverter to ensure correct performance by periodic data detecting (daily, weekly, monthly, yearly). **Z-GPRS** ensures also the remote alarm management and control of energy production.
A real time control helps to reduce any failure and, therefore, to improve the performances in long-term period (usually the return on investment is 12-14 years). The automatic alarm sending will grant indeed and quick assistance in case of failure.

CONTROL OF PHOTOVOLTAIC INVERTERS

Parameters
Power dc/ac
Current dc/ac
Voltage dc/ac
Network frequency
CosΦ
Temperature
CO2 emissions

Inverter

Z-GPRS

SMS / E-MAIL

Modbus

Application	Hardware configuration	Signal types	
		Digital inputs	Digital outputs
Control of photovoltaic inverters	Z-GPRS-D I/O modules	n	n

E

Connected to I/O modules, **Z-GPRS** is able to acquire analog signals from sensors (i.e. 4-20mA / 0-10V) It's configured to make a datalogging with remote communication.
Unlike traditional dataloggers available on the market, **Z-GPRS** stores the data into the flash memory (4Mb) and allows the data sending through e-mail that could be registered into a Pc. This configuration includes also the SMS alarm management if any input signal will exceed the thresholds.

DATALOGGING OF ANALOG VARIABLES

Device with N.4 Analog inputs
Z-4AI

Z-GPRS

E-MAIL

Analog probes

Modbus
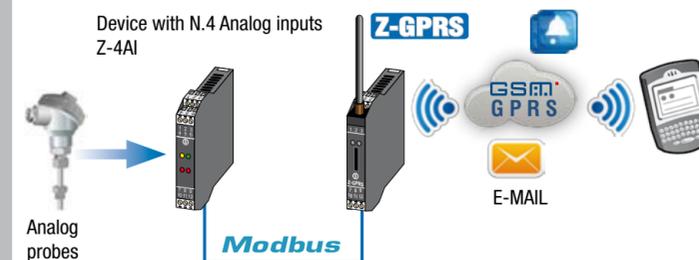
Application	Devices used	Signal types	
		Digital inputs	Digital outputs
Datalogging of analog variables	Z-GPRS-E Z-4AI	0	4/8

F

Z-GPRS connected to a I/O modules able to acquire totalizers (as Z-D-IN), the internal recording on flash memory and automatic sending through SMS or e-mail.
Digital modules have 32 bit counters and can be connected to flow meters, energy meters etc. Compared to standard dataloggers, **Z-GPRS** allows a remote connection (automatic data sending through SMS or e-mail) and the data will be transferred to a PC

DATALOGGING OF PULSE OUTPUT METERS
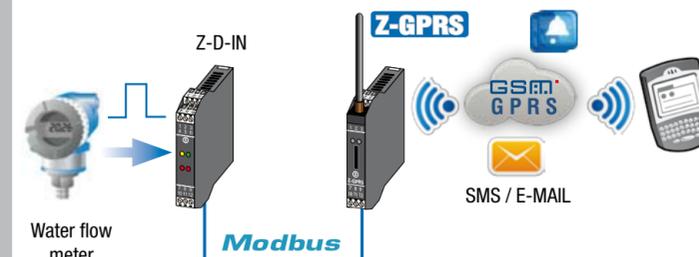
Z-D-IN

Z-GPRS

SMS / E-MAIL

Water flow meter

Modbus

Application	Hardware configuration	Signal types	
		Digital inputs	Digital outputs
Datalogging of pulse output meters	Z-GPRS-F Z-D-IN	5	5

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