

M-RTU-GP

Compact telemetry unit for cathodic protection

Installation Manual

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SENECA s.r.l.
Via Austria, 26 - 35127 - PADOVA - ITALY
Tel. +39.049.8705355 - 8705359 - Fax +39.049.8706287
For a manuals and configuration software, see www.seneca.it

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General Specifications

- Remote control for small industrial and civil application
- Monitoring of measured parameter and data analysis
- Temporary power-on for receive / transmission of messages
- Spontaneous data transmission or on demand
- Modbus-RTU protocol communication in local or in remote
- GSM modem for change the setting by SMS
- GPRS modem with SMTP e FTP protocol for transmission /receive of email.

Technical Specifications

GENERAL

Microprocessor	32 bit, core ARM7, 2 UARTS, low power
Memory	EEPROM: 64 Kbyte FLASH: 2 Mbyte
Timer	Internal RTC ; max. error: 75 ppm (-10.. 60°C)
Modem	GSM / GPRS dual band full type approval.
Serial port communication	Serial port RS232, half duplex. Baud rate: 1200, 2400, 4800, 9600, 19200*, 38400; 57600, 115200.
Protocols	ModBus RTU RS232 . SMS Protocol , SMTP e FTP Protocols for email service.

DIGITAL INPUTS/OUTPUTS

Digital inputs	4 with galvanic insulation.
input Frequency sampling time	10 Hz
Digital outputs	2 bistable relay. Capability 30 Vdc/ 1 A max (resistive load).

ANALOG INPUT

Number of channel	2
Programmable full scale Analog Input 1	Voltage : ±50 V, ±20 V, ±2 V // Current : ±20 mA
Resolution	15 bit signed
Accuracy	@ 20°C: 0,05 %
Input impedance	> 1 MΩ

POWER SUPPLY

Voltage	8.. 30 Vdc, maximum pulse current: 700 mA
Consumption	Standby: 3,3 mW, Max: 5 W

ENVIRONMENTAL CONDITION

Temperature	-10 ..+60°C
Humidity	30 ..90% a 40°C noncondensing
Altitude	Up to 2000 m a.s.l.
Storage Temperature	-20 ..+85°C
Box protection degree	IP30

CONNECTIONS

Connections	DB9 -F connector for RS232
	SMA-socket for antenna connector
	I/O connector : Removable screw terminals pitch= 3,5

DIMENSIONS / BOX

Dimension	L: 132 mm; H: 65 mm; W: 67 mm
Box	PBT, Black

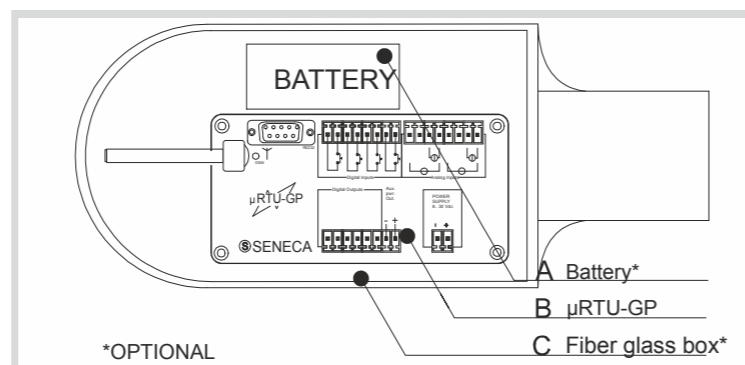
STANDARDS

The module complies with the following standards:

- EN 301 511** Harmonized standard for mobile station in the GSM 900 and 1800 bands.
- EN 301 489-1** Electromagnetic Compatibility standard for radio equipment and services
- EN 301 489-7** Specific (EMC) conditions for mobile radio equipment (GSM 900 and 1800).
- EN 60950** Safety of information Technology Equipment.

Installation Rules

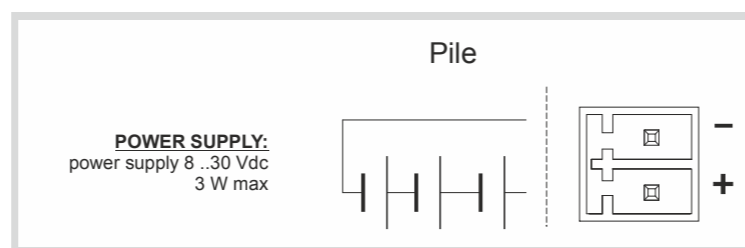
The M-RTU can be installed into a fiber glass box for NB 1-1/2" fitted on a tube (see ACCESSORIES) instead of a normal install into a control panel.



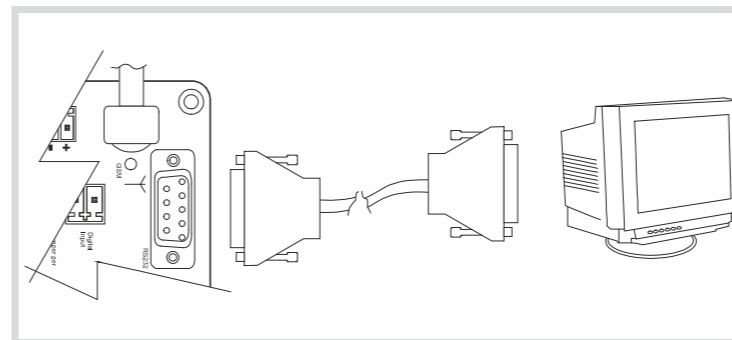
Use a cable according to national harmonized rules that describes the standards of wiring section for cable in compliance with the application. Use a feeding cable with **minimum section of 0.25 mm²**.
When the power supply came from external battery the maximum length of feeding cable must not exceed 3 meters.

Electrical connections

POWER SUPPLY



Local CONNECTION TO PC THROUGH RS232

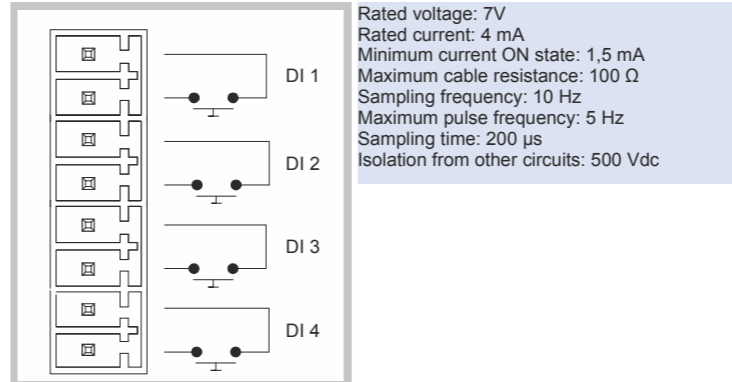


The device has an RS232 connector (DB9-F) for connect with the PC serial port. The cable purchase code is PM002500

COMMUNICATION PARAMETER for LOCAL connection : 19200,8,N,1.

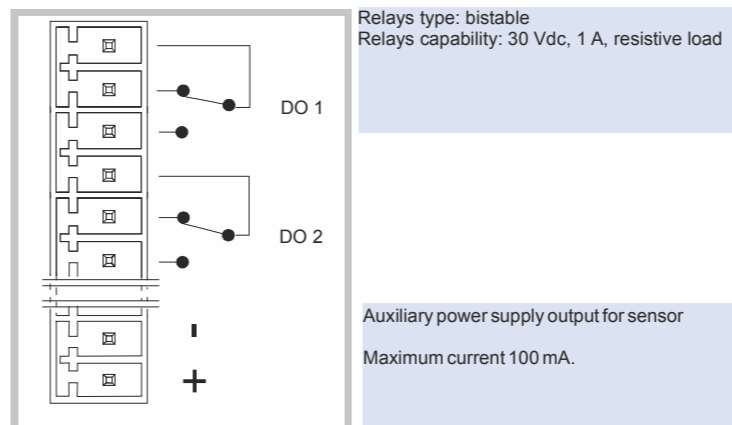
MEASUREMENT CONNECTIONS

Digital Inputs



Rated voltage: 7V
Rated current: 4 mA
Minimum current ON state: 1,5 mA
Maximum cable resistance: 100 Ω
Sampling frequency: 10 Hz
Maximum pulse frequency: 5 Hz
Sampling time: 200 μs
Isolation from other circuits: 500 Vdc

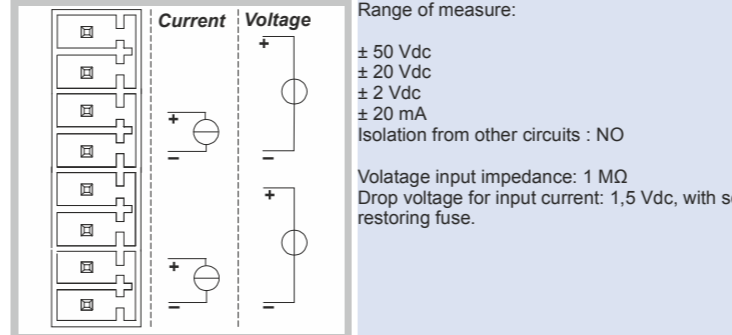
Digital Outputs / Auxiliary power supply output



Relays type: bistable
Relays capability: 30 Vdc, 1 A, resistive load

Auxiliary power supply output for sensor
Maximum current 100 mA.

Analog Inputs



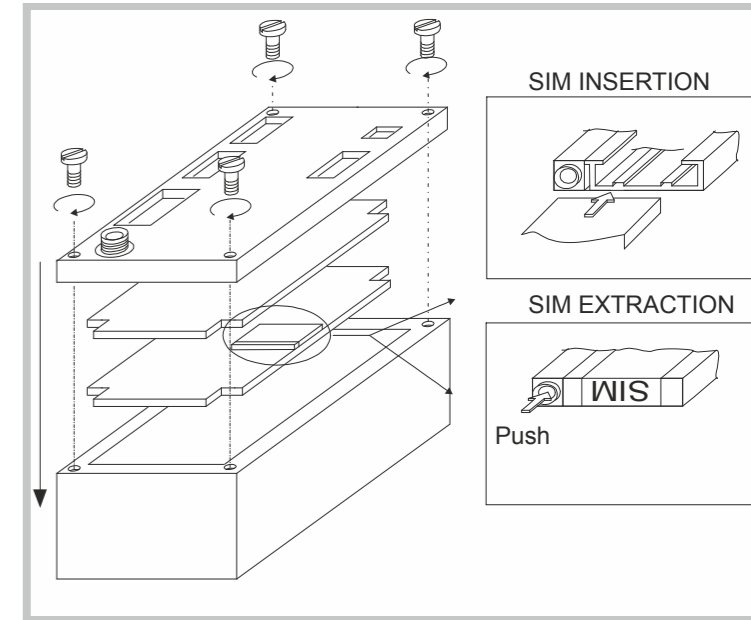
Range of measure:
± 50 Vdc
± 20 Vdc
± 2 Vdc
± 20 mA
Isolation from other circuits : NO

Voltage input impedance: 1 MΩ
Drop voltage for input current: 1,5 Vdc, with self-restoring fuse.

The M-RTU operate with the following step:

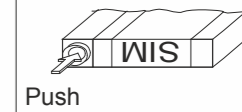
- Data acquisition from Analog/Digital channels
- Data processing of Analog/Digital channels
- Datastore of elaborated data
- Temporary power-on GSM modem
- Spontaneous transmission for elaborated daily data
- Calculation of the operating days
- Signalling of restoring functioning

SIM CARD insertion / Box assembling



SIM INSERTION

SIM EXTRACTION



LEDs signalings

LED	STATE	MEANING OF LEDs
GSM	Slow blinking (3/5s)	GSM in function
	OFF	GSM not operate
	ON	Data connection establish
	Fast blinking	Network retrieval / SIM disconnected

Factory setting

The M-RTU don't has initial factory CONFIGURATION. The user must configure the M-RTU with seneca's software to download from www.seneca.it the configuration software are listed below:
- M-RTU GP configurator
- M-RTU GP datastore

Accessories

CODE	DESCRIPTION
CASS-01	Fiberglass box
BATT-S	Battery pack 10,8 V
PM002500	Communication cable
PM002490	Programming cable
A-STIL	Stick antenna
A-GSM	External antenna (cable lenght 3 m)
S-DIN	DIN rail support.

For more information about a list of all register and their function consult the USER manual or visit www.seneca.it .

