Language manual	English
Product	**M-RTU-PC**
Description	**Device for remote monitoring of cathodic protection**
Type manual	Installation and use

Contents: ***Pag.***

CE

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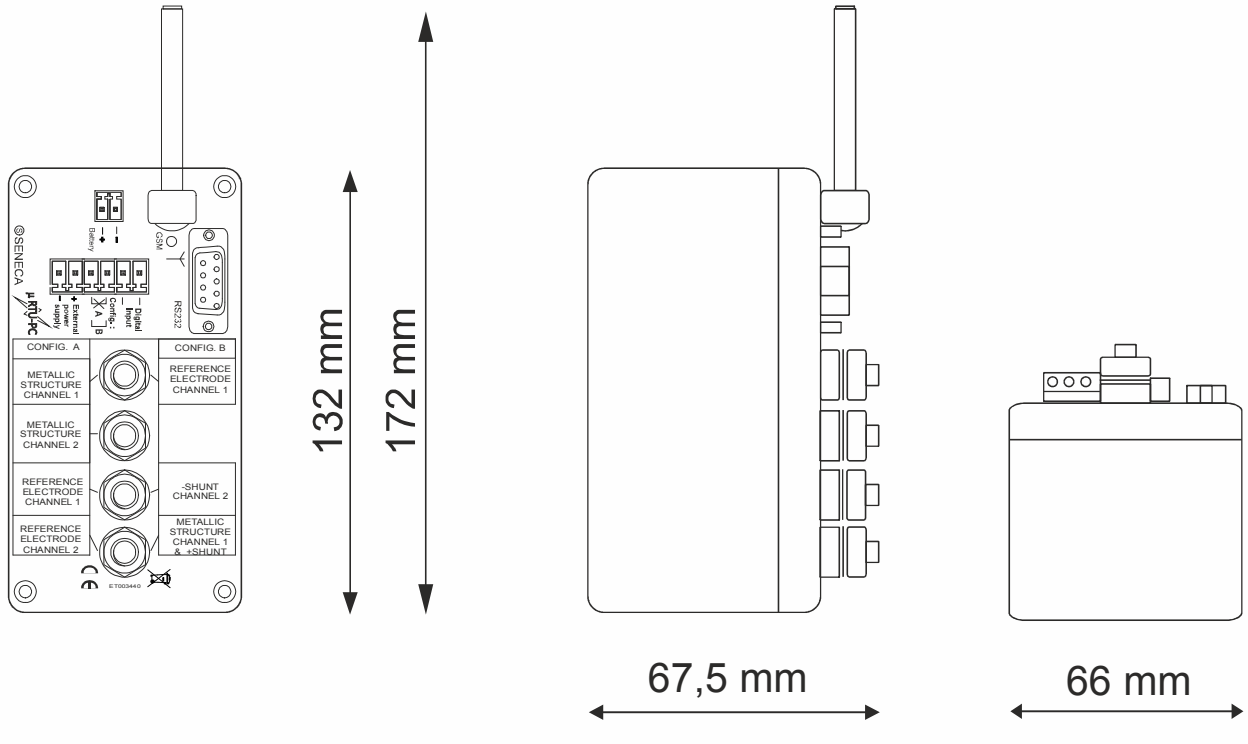
1.0 GENERAL SPECIFICATIONS

- Monitoring of parameter and data analysis for corrosion of metal structures , like as oil pipeline, gas pipeline, tank, building ecc..
- Temporary power-on for received / transmission of messages
- Spontaneous data transmission or on user 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 /received of email.

2.0 TECHNICAL SPECIFICATIONS

	2.1 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(default), 38400; 57600, 115200.
Protocols	ModBus RTU Transmission parameter: 1 bit start, 8 bit date, 1 bit stop, parity none. SMS Protocol , SMTP e FTP Protocols for email service.
	2.2 Digital input
Number of channel	1,isolated
Input frequency	0,25 Hz, duty cycle 90/10
Minimum repetition pulse time	400 ms
	2.3 Analog inputs
Number of channels	2
Programmable full scale CHANNEL 1	Voltage : ±50 V, ±20 V, ±2 V Current : ±2 A.
Programmable full scale CHANNEL 2	Voltage: ±50 V, ±20 V, ±2 V
Resolution	15 bit signed
Accuracy	at 20 °C: 0.05 %
Input impedance	Voltage channel impedance > 1 MΩ
	2.4 Power supply
Voltage	Main from battery: 8.. 30 Vdc External: 8.. 30 Vdc
Consuption	Standby: 3,3 mW, Max: 5 W peak

	2.5 Environmental condition
Temperature	-20 °C.. +70 °C
Humidity	30 ..90% a 40 °C noncondensinge
Altitude	Up to 2000 m above sea level
Storage temperature	-20 .. +85°C
Protection	Ip30
	2.6 Connectors
Connectors	DB9-F connector for RS232
	SMA-socket for antenna connector
	Analog I/O connectors with stud nuts M6
	Screw terminals with pitch 3,5 mm
	2.7 Box
Dimension	L: 132 mm x H: 67,5 mm x W: 66 mm
Box	PBT, Black
	2.8 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	Speific (EMC) conditions for mobile radio equipment (GSM 900 and 1800).
EN 60950	Safety of information Technology Equipment.
	2.9 Dimension



3.0 DISCLAIMER

The proper and safe operation of the device assums that the operating instructions are read and the safety warnings ( ) given in the various sections are observed.

The Modules are equipped with electronic components that may be destroyed or damaged by electrostatic discharge therefore the precautionary measure for handling components at risk must be observed.
Repair and replacement of product must be done by Seneca s.r.l.
The batteries contained in the device can be dangerous, observe the following precautions: Do not short circuit the terminals, do not disassemble, not heated above 100 ° C, not drilled the case. Do not put the internal components in contact with water, not soldered directly on the battery.

The use of the product detailed in this manual is exclusively geared to electrical specialists who are also familiar with the valid standards. Seneca s.r.l. declines all liability resulting from improper action and damage to others product due to non-observance of the information contained in this manual.

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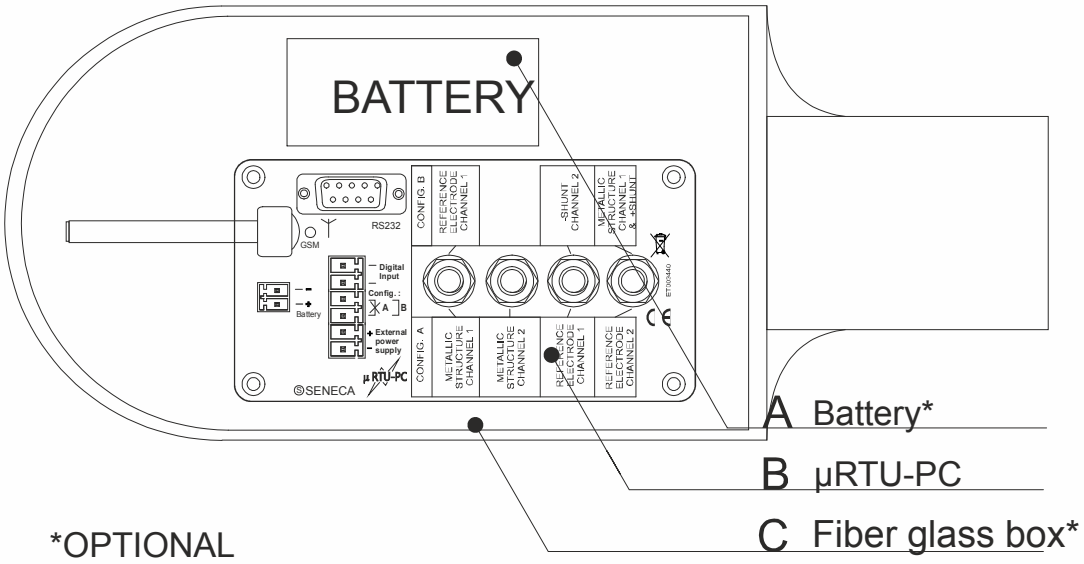
4.0 INSTALLATION RULES

The M-RTU can be install into a fiber glass box for NB 1-1½" tube (optional) besides a normal install into a control panel.



*OPTIONAL

Use a cable according to national harmonized rules that describe 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 battery the maximum lenght of feeding cable must not exceed 3 meters.
The stud nut measurement terminals are suitable for eyelet terminals with **section of 6 mm².**

5.0 ELECTRICAL CONNECTIONS

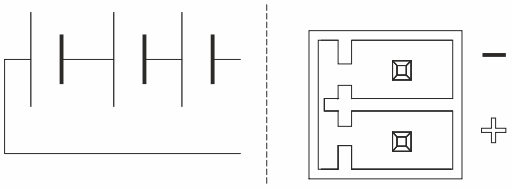
5.1 Power supply and screw terminals connections

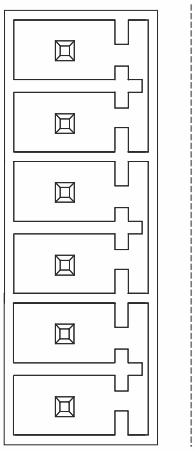
The power supply for M-RTU may came from battery (Mains power supply port)or from external supply (external power supply port).The M-RTU can be powered at the same time from both power supply port, in this case the external supply can be in alternative to battery.

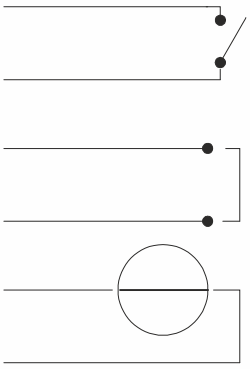
The power supply from external supply operate in the following case:
- The power supply from battery cease
- The voltege power supply from battery are less thanexternal voltage supply.

Therefore:
V ext > V batt →V ext enable
V ext < V batt →V batt enable

Mains Power supply from Battery
power supply 8 ..30 Vdc





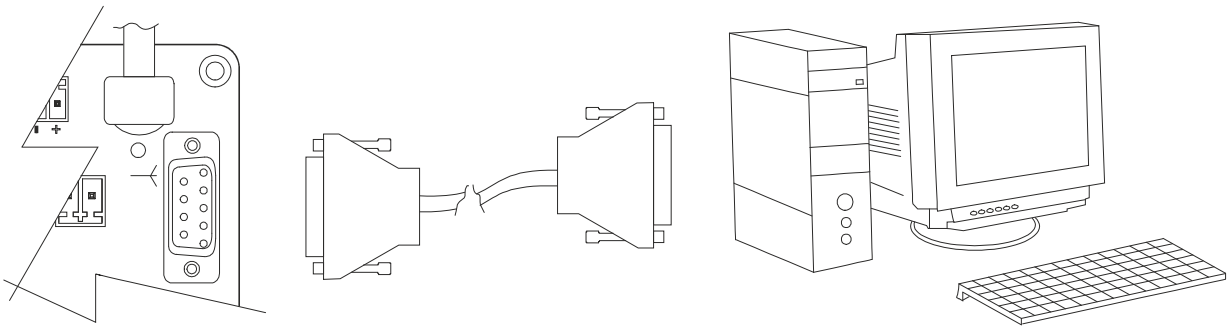


Digital input

Jumper for shunt connection.

External power supply
External power supply 8.. 30 Vdc.

5.2 Rs232 Connection to PC



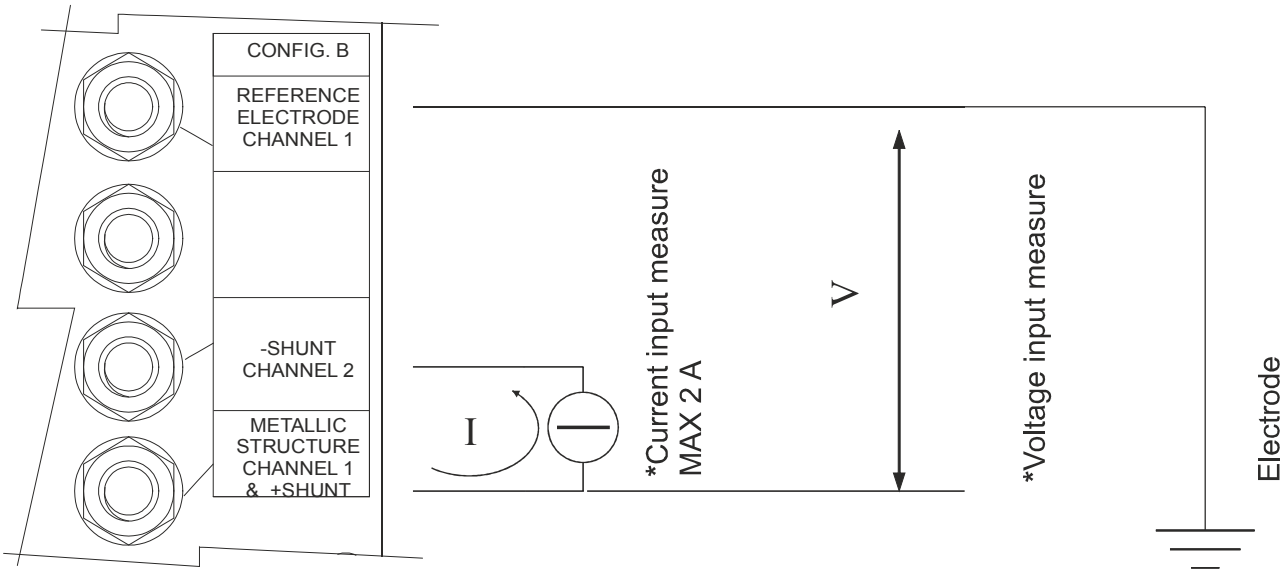
The device has an RS232 connector (DB9-F) for connect with the PC serial port.
The cable purchase code is Pm002500.

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

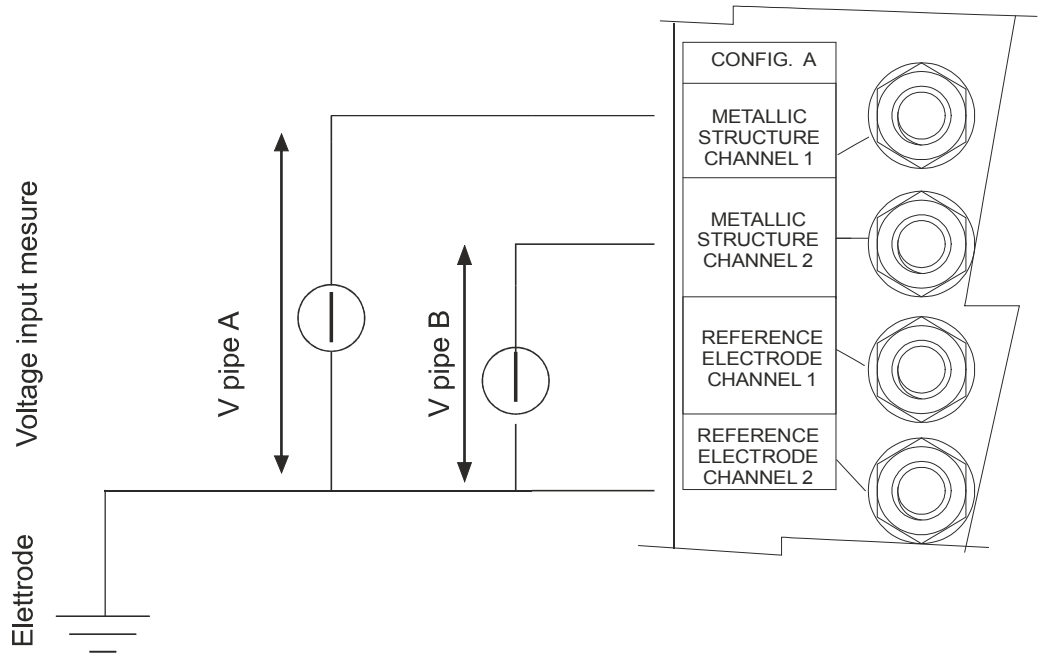
5.3 Measurement connections

5.3.1 Connection WITH shunt

Assicurarsi di aver insrito il JUMPER prima di procedere.
E' consigliato usare cavi di sezione 6 mm^2 per eviatare problemi di misura.

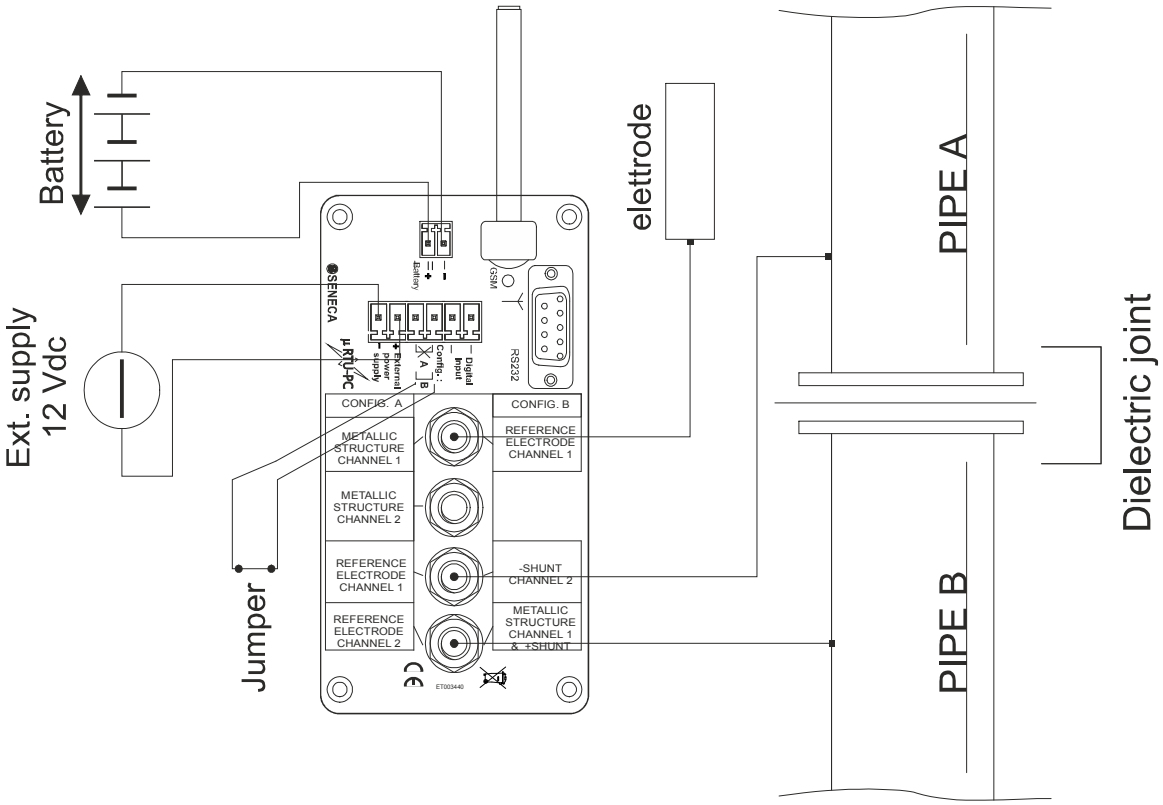


5.3.2 Connection WITHOUT shunt

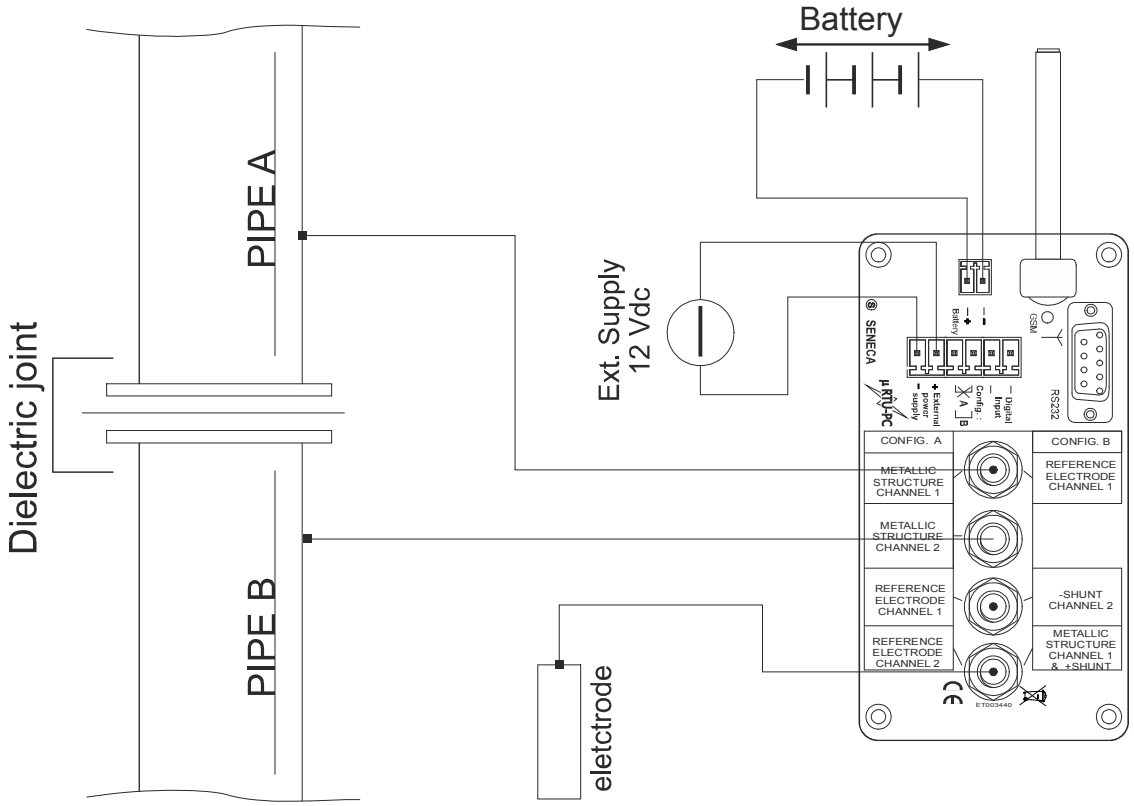


6.0 CONNECTION EXAMPLE

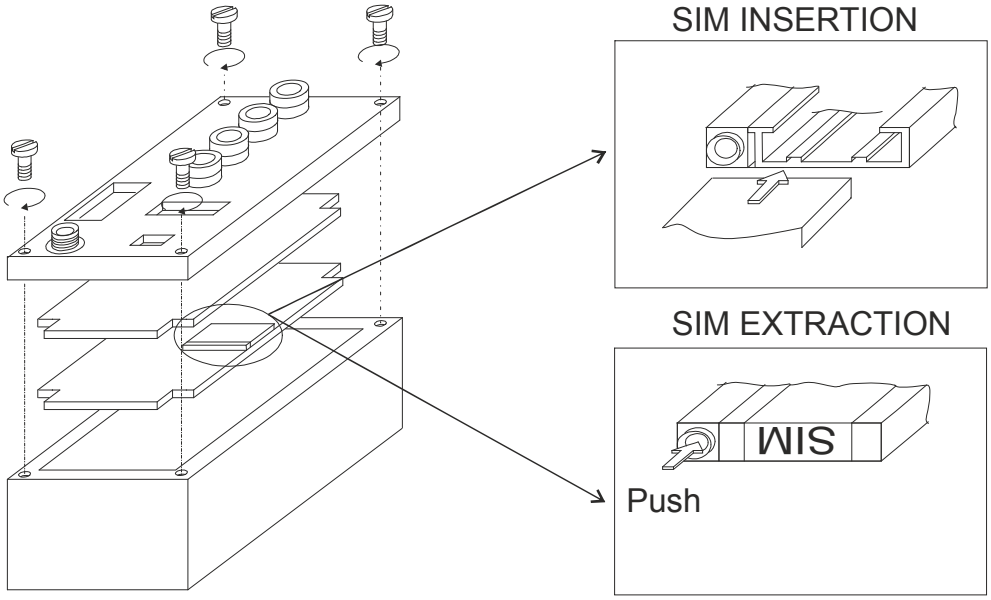
6.1 Configuration B WITH shunt



6.2 Configuration A WITHOUT shunt



7.0 INSERIMENTO DELLA SIM-CARD E ASSEMBLAGGIO DEL CONTENITORE



8.0 LEDs SIGNALLINGS

LED	STATE	MEANING
GSM	Slow blinking 3/5 s	GSM on function
	Off	GSM not operate
	On	Data connection estabilish
	Fast blinking	Network retrieval / SIM disconnected

9.0 FACTORY SETTING

The M-RTU don't has CONFIGURATION.
The user must be configure the M-RTU with seneca's software :
- M-RTU PC configurator
- M-RTU PC datastore

10.0 ORDER CODE AND ACCESORIES

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 visit the web site:
www.seneca.it otherwise mail to supporto@seneca.it .

Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collections programs). This symbol, found on your producr or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical & electronic equipment. By ensuring this product is didposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of the product, please contact your local city office, waste disposal service of the retail store where you purchased this product.