INSTALLATION MANUAL

RTU-LP-ST

RTU / Datalogger Low Power with
embedded modem GSM/GPRS and I/O



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ISTRUCTIONS TRANSLATED INTO ENGLISH - EN

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	**The full content of this Manual must be read before performing any operation**. The module must only be used by qualified electricians. Specific documentation is available from www.seneca.it
	The module must be repaired and damaged parts replaced by the Manufacturer. The product is sensitive to electrostatic discharges. Take appropriate measures during all operations.
	The warranty is null and void in the event the module or devices supplied by the Manufacturer, necessary for its correct operation, are improperly used or tampered with and, in any case, if the instructions contained in this manual were not followed.
	Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows the product must be surrendered to a collection centre authorized to recycle **electrical and electronic waste**.

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RTU-LP DESCRIPTION

The RTU-LP-ST is a device used to tele-control digital and analogue data via GSM/GPRS connections. The system architecture is based on a microcontroller, an in-built modem and a range of inputs/outputs. RTU-LP-ST is suitable for all the telecontrol applications on small systems, system parts, data collection and management.
The many accessories such as external aerials, IP65, IP67 protection casings or battery packs with increased capacity, guarantee a customisable and complete offer for industrial applications.

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INSTALLATION REGULATIONS

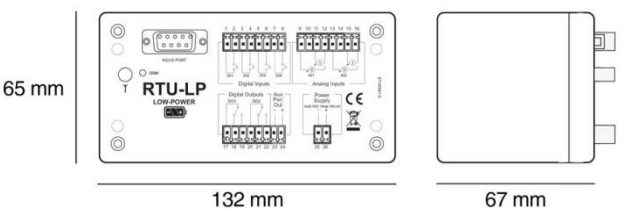
In addition to the installation on an IEC EN 60715 omega rail using the S-DIN support with screws supplied, the RTU-LP device can be housed in an IP65 pre-wired housing (BOX-RTU-IP65) with battery support and dimensions 290x140x108mm.
Check the order codes in the SOFTWARE and ACCESSORIES paragraph on page 8.

	For the wiring, use only a cable compliant with the national or harmonised regulations, having a section suitable to the device consumption and the installation conditions. Use power cables with a minimum section of 0.25mm².
	If external batteries are used, the power cable maximum length must not exceed 3 meters.
	It is MANDATORY to use an antenna with coaxial cable positioned at minimum 50cm from the unit.

FACTORY SETTINGS

The RTU-LP device has no factory settings: To proceed with the first configuration, it is necessary to use the EASY RTU LP software that can be downloaded free of charge from the software section of the product sheet www.seneca.it/products/rtu-lp-st

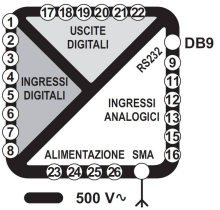
MODULE DIMENSIONS



Dimension (WxHxD)	132 x 65 x 67 mm
Weight	290 g
Case	ABS, black

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TECHNICAL SPECIFICATIONS

POWER SUPPLY	
Voltage	8..30 Vdc
Absorption	3.7 mW (no TX, no AUX PWR and inputs OFF). 5 W PEAK DURING tx
Sensor auxiliary supply	100 mA maximum • for external loop-powered sensors with automatic pre-start function.
AUTONOMY	Life with 13,000 mA/h @ 10,8V (*) Lithium-thionyl Chloride batteries up to 3 years.
FUNCTIONALITY	• Data transmission on event or request. • Temporary switching on for message reception and/or sending and temporary switching on on event • Datalogger with 2MB internal Flash memory • Maximum analogue log speed: 30 sec. • Maximum digital log speed: 1 sec.
INSULATION	
DIGITAL INPUTS	4 galvanically insulated with 1 Hz sampling frequency 4 x 32 bit totalizers (maximum 1 Hz).
DIGITAL OUTPUTS	2 with bistable relays Capacity: 30 Vdc / 1 A Max (resistive load)
ANALOGUE INPUTS	2 in Voltage (±50 V, ±20 V, ±2 V) or Current (±20 mA) Resolution: 15 bit + sign Precision: 0.1% F.S. at 20°C Input impedance: > 1 MOhm
CPU and MEMORIES	ARM 32 bit, EEPROM: 64 kB, FLASH: 2 MB
CLOCK	Internal RTC; max error: 75 ppm (-20 – 70°C)
IN-BUILT MODEM	GSM/GPRS quad-band 850/900/1800/1900 MHZ GPRS multi slot class 10, GPRS max. speed 86 kbps (DL) Coding scheme CS-1, CS-2, CS-3, CS-4.

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TECHNICAL SPECIFICATIONS

COMMUNICATION PORT	1 RS232 half duplex
PROTOCOLS	ModBUS RTU SMS protocol FTP protocol to send the Log
CONNECTIONS	DB9F connector for RS232 SMA-F antenna connector I/O connectors: Removable terminals pitch = 3.5mm
AMBIENT CONDITIONS	
Operating temperature	-20°C – +70°C
Humidity	30 – 90% to 40°C non condensing
Altitude	up to 2000 m above sea level
Storage temperature	-20°C – +85°C
Protection rating	IP40 (without optional outside container)
STANDARDS	**EN 61000-6-4** Electromagnetic Emission, industrial environment. **EN 61000-6-2** Electromagnetic Immunity, industrial environment. **EN 301 511** Harmonized standard for mobile stations in the GSM900 and 1800 bands. **EN 301 489-1** Electro-Magnetic 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.

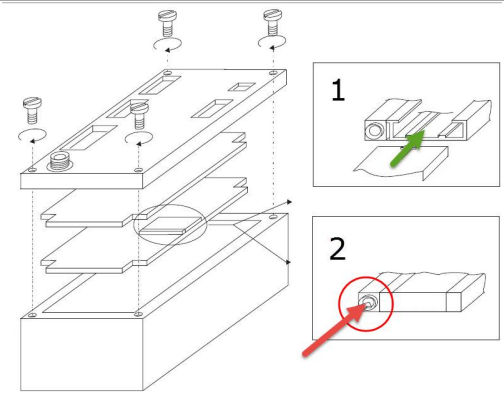
(*) with 1 SMS transmitted a day, all inputs OFF, no sensor auxiliary power and no RS232 serial communication.

LED SIGNALLING THE STATUS OF THE GSM NETWORK

Fast flashing	Network search / SIM not connected
Slow flashing	GSM transmitting
ON	Data connection
OFF	GSM not operating

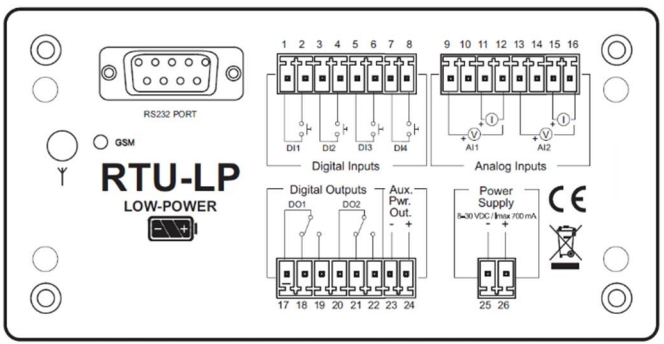
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OPENING THE CASE AND INSERTING THE SIM CARD



After removing the 4 screws with a screwdriver, follow the instructions in the picture above: to insert the SIM card, follow figure 1; to remove it, press the button on the side of the slot as shown in figure 2.

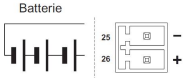
MODULE FRONT LAYOUT



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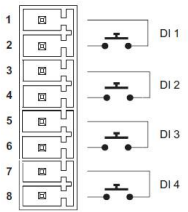
ELECTRICAL CONNECTIONS

Power supply



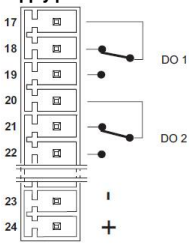
8..30 Vdc
Absorption 5 W max

Digital inputs



Rated voltage: 7 V
Rated current: 4 mA
Minimum current for ON status: 1.5 mA
Maximum cable resistance: 100 Ohm
Sampling frequency: 1 Hz
Each input has a 32 bit counter.
Insulation towards the other circuits: 500 Vdc

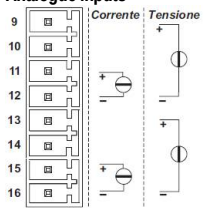
Digital outputs / Auxiliary supply port



Relay type: bistable
Relay capacity : 30 Vdc, 1 A Max, resistive load

Auxiliary output to supply the sensors
Maximum current 100 mA

Analogue inputs

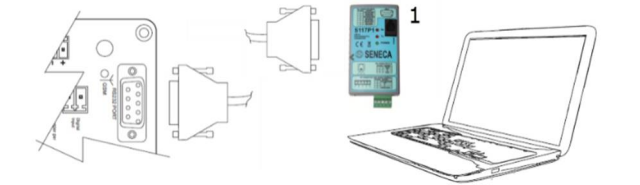


Measuring scales:
± 50 Vdc
± 20 Vdc
± 2 Vdc
± 20 mA

Insulation towards the other circuits: NO
Impedance of voltage input: 1 MOhm
Voltage drop with current input: 1.5 Vdc
protected by a self-resetting fuse

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CONNECTION TO THE PC



To connect to a PC, an RS232/USB (**1**) serial converter such as SENECA S117P1 is required.
Once the converter is installed, just use the cables supplied:
To ***configure the device,*** the EASY RTU LP software must have been installed and the serial cable with the **CONFIG CABLE** label must be used.
To ***update the firmware,*** the EASY RTU LP software must have been installed and the serial cable with the **UPDATE CABLE** label must be used.

SOFTWARE AND ACCESSORIES

EASY RTU LP	Free software used to configure the device
BOX-RTU-IP65	Pre-wired IP65 case 290x140x108mm
BATT-S	Lithium battery pack 3 cells 10.8 V – 1.5 Ah
BATT-2S	Double lithium battery pack 3 cells 10.8 V – 25 Ah
A-GSM	External antenna (3m cable)
A-GSM-DIR-5M	Triband compact directive antenna (5m cable)
A-GSM-OMNIDIR	Triband omnidirectional antenna (5m cable)
A-GSM-OMNIDIR-10	Triband omnidirectional antenna (10m cable)
A-GSM-QUAD	4G omnidirectional external antenna (5m cable)
S117P1	RS232-TTL-RS485/USB serial converter
CS-DB9M-DB9F	Configuration serial cable (CONFIG CABLE)
CS-DB9M-DB9F-CR	Firmware update cable (UPDATE CABLE)
S-DIN	Support for DIN rail

CONTACTS

Technical support	support@seneca.it
Product information:	sales@seneca.it

For further information, refer to the online sheet and the USER MANUAL that can be downloaded free of charge from **www.seneca.it/products/rtu-lp-st**

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