



POWER FROM WITHIN

REWIND3

SMARTTECH⁺

USER MANUAL

Table of Contents

1. Introduction.....	6
1.1 Terms and Abbreviations.....	6
1.2 Conventions.....	7
1.3 General info.....	7
1.4 Reference documents.....	8
1.5 Prerequisites.....	8
1.6 Software Revisions.....	9
1.7 Safety information.....	9
1.8 Maintenance and cleaning.....	9
1.9 Information concerning disposal.....	10
2. Views of the device.....	11
3. Technical Features.....	12
4. Installation.....	19
4.1 Package content.....	19
4.2 Device Dimensions.....	19
5. Connections.....	20
5.1 J1 Connector (Ref. 11).....	22
5.1.1 Device supply.....	22
5.1.2 External Backup battery.....	22
5.1.3 0-5Vdc Analogue input.....	23
5.2 J2 Connector (Ref. 13).....	23
5.2.1 Relay Outputs.....	23
5.2.2 WAKE-UP Input.....	24
5.2.3 Insulated RS485 interface.....	24
5.2.4 Insulated CANBUS interface (optional).....	24
5.3 J3 Connector (Ref. 12).....	24
5.4 RS232 Connector (Ref. 3).....	25
5.5 USB Function Connector (Ref. 1a).....	26
5.6 USB HOST Connector (Ref. 1b).....	27
5.7 GSM-LTE (Ref.9) and GNSS (Ref.6) Connectors.....	27
6. Indicators (Ref. to fig. 1).....	29
7. Pushbuttons and DIPSWITCHES (ref. to fig. 1).....	30
8. Boot procedure.....	32
8.1 SIM Card.....	32
8.1.1 SIM format.....	32
8.1.2 SIM phone plan.....	32
8.1.3 How to insert/extract the SIM card in the Rewind.....	34
9. Parameters configuration.....	36
9.1 REWIND Configuration modes.....	36
9.1.1 Parameters configuration via Board PRG.....	36
9.1.2 SMS Configuration.....	44

9.1.3	Web Configuration (only providing the first data transmission of the REWIND)	47
9.2	Mobile Network Configuration	48
9.3	“SMARTCLOUD” system	49
9.4	Serial port	51
9.5	Modbus Devices	51
9.6	SMS	52
9.7	Connection via Mecc Alte Supervision	53
9.8	Use of the REWIND device to send SMS only	53
10.	Lithium Ion internal battery	55
11.	External tank management	55
12.	Energy saving	57
12.1	Power Save	57
12.2	Sleep Mode	57
13.	Auxiliary data management	59
14.	SMS	60
14.1	Automatic SMS	60
14.2	SMS commands	60
14.3	SMS Interpretation	60
14.4	SMS to Rewind	61
14.5	SMS interpreted by Rewind with board data	62
14.6	SMS forwarded to Mecc Alte boards	63
14.7	Commands SMS valid for Mecc Alte controllers	64
14.8	Commands SMS valid for DSE controllers	65
14.9	Commands SMS valid for COMAP controllers	65
14.10	Commands SMS valid for ELCOS controllers	65
14.11	Commands SMS valid for DEIF controllers	66
14.12	Commands SMS valid for WOODWARD controllers	66
14.13	Commands SMS valid for CATERPILLAR controllers	66
15.	Troubleshooting	67
15.1	REWIND doesn't send data to SMARTCLOUD Why?	67
15.2	SMARTCLOUD receives the data but they are all at zero and I don't see the genset data. Why?	68

1. Introduction



WARNING! Ensure to read this manual carefully before operating the device.

1.1 Terms and Abbreviations

APN	<i>Access Point Name. It is an access point to the Internet for data transfer via GPRS, 3G, 4G, or other technology.</i>
BEIDOU	<i>Chinese Geostationary Navigation System</i>
CANBUS	<i>Controller Area Network. Standard di comunicazione seriale per il collegamento di unità di controllo elettronico (ECU).</i>
CAT-M	<i>Type of LPWAN low power LTE-based radio technology standard designed for the Internet of Things</i>
EDGE	<i>Enhanced Data rates for GSM Evolution (E)</i>
FIX	<i>Acquisition of geographical coordinates</i>
GLONASS	<i>GLObal'naya NAVigatsionnaya Sputnikovaya System (Russian Navigation System)</i>
GNSS	<i>Global Navigation Satellite System. Generic term for a global navigation satellite system. Examples of GNSS are: GPS, BEIDOU, GLONASS, GALILEO</i>
GPRS	<i>General Packet Radio Service</i>
GPS	<i>Global Positioning System (US navigation system)</i>
GSM	<i>Global System for Mobile</i>
IoT	<i>Internet of Things</i>
IP	<i>Internet Protocol</i>
LPWAN	<i>Low Power Wide Area Network</i>
LTE	<i>Long Term Evolution</i>
LTE-M	<i>Long-Term Evolution Machine Type Communications Category M</i>
M2M	<i>Machine to Machine. Type of contract for communication on the cellular network with the devices connected to the machines (uses a reduced volume of data).</i>
NAT	<i>Network Address Translation. Technique that masks IP addresses. Used by mobile operators to overcome the limited number of IP addresses available.</i>
NB-IoT	<i>Narrow Band Internet of Things. Type of LPWAN (Low Power Wide Area Network Wide Area Network) low power radio technology standard designed for the Internet of Things.</i>
RAT	<i>Radio Access Technology</i>
REWIND	<i>Remote Wireless Network Device</i>
RF	<i>Radio Frequency</i>
SIM	<i>Subscriber Identification Module</i>
SMARCLOUD	<i>Mecc Alte MONITOR NETWORK</i>
SMS	<i>Short Message Service</i>
TTF	<i>Time to First fix</i>
TCP	<i>Transmission Control Protocol. Transmission protocol for communication between two network points.</i>
VSWR	<i>Voltage Standing Wave Ratio</i>

1.2 Conventions

Along the manual, a vertical bar at the right of the paragraphs shows the modifications with respect to its previous version. In tables, modifications are showed with a grey background.

1.3 General info

This manual describes the technical, functional and use characteristics of the device **REWIND 3 (Remote Wireless Network Device)**.

Article Code:

E61121622xxyy - REWIND 3 VER.xx REV.yy

Accessories:

E61119091xxyy - FUEL LEVEL CONVERTER INPUT 0-500R OUTPUT 0-5Vdc

E090000000048 - CROSS OVER CABLE RS232 DB9P F/F MT2 AT

E700000002004 - GSM+LTE +GPS/GLONASS ANTENNA MOD.FCPG SMA 3MT

The **REWIND** device allows you to connect a unit (genset or other entity) to the internet data network and monitor its operating status.

REWIND is able to:

- Connect to Mecc Alte controllers and other third parties via Modbus RTU protocol (RS232 / RS485 interface).
- Control the machine status through 8 digital inputs.
- Control two dry contact relays.
- Capture one analogue input (tank level).
- Read generic Modbus devices (e.g.: meters, temperature detectors, etc.).
- Locate the machine through the GNSS positioning system.
- Manage SMS* (send on event/alarm, reply to requests).
- Send data to a data cloud (SMARTCLOUD), which :
 - History data and events in a constantly updated database.
 - Allows access to the portal from any web browser, or via Android / iOS App.
 - Manages the sending of emails.
 - Performs reports.
 - Allows data export.
 - Displays the trend of measurements (trend).
 - Displays the geographical position and tracking, if applicable.

The device is equipped with a **LTE Cat.M1** and **NB-IoT** Multimode module and quad-band **2G** fallback (**GPRS/EDGE**) with multi-regional coverage.

They embed also a Global Navigation Satellite System (**GNSS**) receiver, using **GPS**, **GLONASS**, **GALILEO** or **BeiDou** system, to provide and reliable positioning information with a high accuracy and performance.

The flexibility extends further with dynamic system selection as **Cat.M1**, **NB-IoT**, and **GPRS/EDGE** in single mode or as a preferred connection that does not require a module reboot to switch between modes. They provide a solution for applications that require broad geographic coverage, even in areas where **LTE Cat.M1** and **NB-IoT** are not widely available yet.

New **REWIND** devices deployed in the field today, can then be activated on existing **2G** networks and still leverage the benefits of **LTE Cat.M1** and **NB-IoT** technology once it becomes available.

Moreover, you may configure the device for sending/receiving signal and control **SMS** and e-mails.

It is not possible to connect directly to **REWIND** using it as a GSM modem.



Note: Module is able to make and receive SMS*, make GPRS/EDGE/LTE traffic but is unable to make and receive voice calls.

Each device can be interfaced to all Mecc Alte controllers, as well as other manufacturers controllers through a RS232 or RS485 serial port via Modbus RTU protocol.

The connection through serial line allows to acquire different statuses and operating measurements of the genset. In addition, there are eight digital inputs for the acquisition of statuses and commands and two relay outputs with dry contact.

REWIND communicates with the system either periodically or on event, so that all the existing machinery database is updated.

This operation requires a SIM board enabled for data exchange, a radio antenna (**GSM + LTE**) and an antenna for the tracking system (**GPS + GLONASS**). The antennas can be of the "combo" type: a single antenna that incorporates the two types of antennas.

All antennas need to have male SMA connection.

The device works in the same way with both 12 and 24Vdc as nominal voltage, in any case between 8 and 32 Vdc; as option, it can be supplied with a Lithium Ion internal rechargeable battery, which is able to ensure its working, data transmission and localization for some hours in case of lack of the main supply.

The device is able to automatically enter a Sleep Mode status in order to further decrease its consumptions and increase its operating time.

Additionally, there is a dedicate input available for the connection of another external backup rechargeable battery (max. 6Ah Lead battery). This battery works in case of lack of the REWIND supply or when the supply decreases under the external backup battery.

A cladding system allows to keep this backup battery always ready to use.

The nominal voltage of the external backup battery must be equal to the supply nominal voltage.

1.4 Reference documents

- [1] Mecc Alte EAAM0470xxXA (REWIND parameters table).
- [2] Mecc Alte EAAM0477xxZD (instructions for the configuration of Rewind via SMS).
- [3] Mecc Alte EAAS0341xxIT (serial communication and SMS protocol).
- [4] Mecc Alte EAAM00458xx (BoardPrg 3.xx Guide).
- [5] Mecc Alte EAAP0457xxXA (USB driver installation guide).

1.5 Prerequisites

The device can be configured and modified through the **Mecc Alte Board Programmer4 PC Software** (hereinafter called "BoardPrg4"), which can be downloaded for free from the Mecc Alte website www.meccalte.com

BoardPrg4 can be used on all Mecc Alte devices; the connection to the PC can be direct through Serial RS232 and USB Ports, or remote by modem, Serial RS485 Port or Ethernet. Refer to the related manual. Refer to the related manual.

In addition, it allows to save the file of the configuration in order to reuse it for future uses on equal devices.

In this document, there is no detailed description of all programming parameters: see [1]. The document [1] is to be considered part of this manual.

⚠ Important: The REWIND device is designed to be used together with the Mecc Alte SMARTCLOUD (MECC ALTE MONITOR NETWORK) system.

Alternatively, the device can be configured also to send SMS* and remotely connect to the Supervision (with no need of using the SMARTCLOUD software).

In order to visualize and/or configure the REWIND devices in the SMARTCLOUD database, you need to have an account and a password given by Mecc Alte.

⚠ Note: Module is able to make and receive SMS*, make GPRS/EDGE/LTE traffic but is unable to make and receive voice calls.

1.6 Software Revisions

Throughout the manual there will be references to the software revisions of the controller. These revisions will be indicated with the Mecc Alte code assigned to them, which is on the side of the controller. The code format is the following: EB0250288XXYY, where “XX” is the main revision of the software, while “YY” is the secondary revision. So, the code EB02502880107 refers to the software revision “1.07” of the controller.

1.7 Safety information

Many accidents are caused by poor knowledge and the non-observance of safety regulations, which must be observed when operating and/or servicing the machine.

To prevent accidents, before using or servicing the machine you should read, understand and observe the precautions and warnings in this manual.

The following indications have been used to identify the safety messages in this manual:

⚠ WARNING! This indication is used in the safety messages for risks which, unless avoided, can cause malfunction or damage to property or persons.

i INFORMATION! This term implies the message provides information useful for performing the current operation, or explanations or clarifications for procedures.

1.8 Maintenance and cleaning.

The maintenance of this device must be carried out by qualified personnel, in observance of the law in force, in order to prevent from damages to persons or things.

The cleaning of the front panel can be carried out exclusively with a soft cloth. Do not use abrading products, detergents or solvents.

1.9 Information concerning disposal.

 **INFORMATION!** On the disposal of old electrical and electronic equipment (applicable in European countries that have adopted separate waste collection systems).



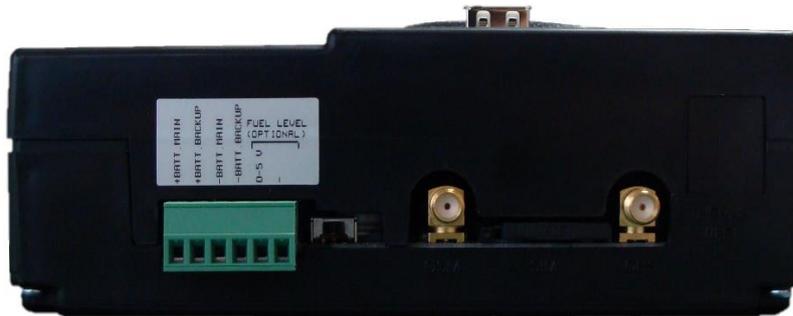
Products bearing the barred wheeled waste container symbol cannot be disposed of with normal urban waste. Old electrical and electronic equipment should be recycled in a facility authorized to process these items and dispose of the components. Contact your local authority for information on where and how to deliver such products to the authorized site nearest you. Proper recycling and disposal helps conserve resources and prevents detrimental effects for health and the environment.

2. Views of the device

Front view:



Upper view:



Lower view:



3. Technical Features



INFORMATION! GND è riferito al potenziale dei terminali J1-3 e J1-4

Supply power voltage +VBATT:				
Nominal power supply (Vn)	12Vdc o 24Vdc			
Power supply range (Vn variation)	From 8 to 32Vdc. Protection against polarity reversal with built-in self-resetting fuse.			
Maximum time of interruption of the supply voltage without resetting the device	With internal batteria OFF o disattiva or discharge: 0 Vdc for min. 20 ms from a nominal voltage of 12Vdc (voltage drop) With internal batteria ON or full charge 0Vdc for the lifetime of the internal battery			
Sampling rate	5 Khz			
Resolution	12 bit			
Average current Consumption and peak current consumption in "active mode"	Power consumption depends on the frequency of data transmission, the type of connection used (EDGE, LTE CATM1, LTE NB-IoT), the type of serial port used for the connection (Rs232, RS485 isolated) and the charge status of the internal battery. Maximum values are obtained with Tx mode radio module and 2G (GPRS / EDGE) connection, RS485 serial active and internal battery discharged and therefore in full charge status. * Average values are calculated over 3 minutes, Peak value are calculated during trasmission slot			
	GNSS active RS232 active, RS485 deactivates Internal battery charged		Average* supply current typ	Peak* supply current
	Idle mode (GPRS/EDGE)	@ 8Vdc @ 12Vdc @ 24Vdc	80 mA 55 mA 35 mA	100 mA 75 mA 50 mA
	Active Tx mode (GPRS/EDGE)	@ 8Vdc @ 12Vdc @ 24Vdc	100 mA 65 mA 60 mA	180 mA 120 mA 115 mA
	Idle mode (LTE)	@ 8Vdc @ 12Vdc @ 24Vdc	75 mA 55 mA 40 mA	105 mA 65 mA 45 mA
	Active Tx mode (LTE)	@ 8Vdc @ 12Vdc @ 24Vdc	95 mA 70 mA 45 mA	135 mA 95 mA 60 mA
	GNSS active RS232 deactivates, RS485 active Internal battery charged		Average* supply current typ	Peak* supply current
	Idle mode (GPRS/EDGE)	@ 8Vdc @ 12Vdc @ 24Vdc	150 mA 105 mA 65 mA	260 mA 175 mA 110 mA
	Active Tx mode (GPRS/EDGE)	@ 8Vdc @ 12Vdc @ 24Vdc	165 mA 105 mA 65 mA	310 mA 195 mA 110 mA
	Idle mode (LTE)	@ 8Vdc @ 12Vdc @ 24Vdc	140 mA 95 mA 60 mA	150 mA 105 mA 65 mA

	Active Tx mode (LTE)	@ 8Vdc @ 12Vdc @ 24Vdc	175 mA 110 mA 65 mA	215 mA 130 mA 75 mA
	GNSS active RS232 deactivates, RS485 active Internal battery discharged		Average* supply current typ	Peak* supply current
	Active Tx mode (GPRS/EDGE)	@ 8Vdc @ 12Vdc @ 24Vdc	335 mA 210 mA 105 mA	500 mA 300 mA 145 mA
Average current Consumption in "Sleep Mode"	Max. 14mA			
Average current Consumption in "Deep Stand-by Mode"	Max. 4,5mA			
Digital inputs 01-08				
Type of input	8 opto-insulated digital inputs with terminal in common, connectable to both supply positive and negative; The maximum voltage applicable between the common terminal and the single input is $\pm 32\text{VDC}$. The maximum insulation voltage with reference to GND is 42,4 Vrms or 60 VDC. When they are open, the voltage on input terminals is equal to the voltage common terminal.			
Activation/deactivation threshold	1,2Vdc			
Typical current with closed contact	5mA @ VBATT= 13,5Vdc 10mA @ VBATT= 27,0Vdc			
Input signal delay	It can be adjusted by the related parameter for each input			
Maximum voltage applicable between the common terminal and the single input	$\pm 32\text{Vdc}$			
Nominal insulation voltage	840 Vrms o 1187 Vdc (reference to GND)			
Digital outputs 01-02				
Type of output	Two relay outputs with dry contacts NO, max. 500mA @30VDC. Each relay output is reconfigurable by parameter			
Rated supply	Max. 500mA@30Vdc for each output. Higher voltages or currents need an external relay with proper characteristics.			
Maximum voltage applicable	30Vdc (reference to GND)			
Analog tank input				
Input type	One differential analog input 0..5Vdc The input offers the possibility of differential measurement to compensate measurement negative differences with respect to GND.			
Measurement range	0 – 5Vdc			
Compensation range	From -3,5Vdc to +5,5Vdc			
Input impedance	> 500 k Ω			
Frequency	5 kHz			
Measurement resolution	12 bit			

Measurement accuracy	< 0,4% F.S.
RS232 Communication interface	
Type of interface	1 RS232 serial port standard TIA/EIA, not insulated on DB connector 9 poles male CANON
Electrical signals	TX, RX, DTR, DSR, GND
Settings	Baud rate selectable by parameter: 300, 600, 1200, 2400, 4800, 9600* , 19200, 38400, 57600, 115200 Parity: None* , Even, Odd Stop bit: 1* ,2 * Default Setting
Type of transmission	Modbus RTU Master* , Modbus RTU Slave * Default Setting
Maximum distance	The length of the cable depends on its capacitance, inductance and shielding. 15m (50ft) @ 9600bps 10m (33ft) @ 19200bps 7,5m (25ft) @ 38400bps 5,0m (16ft) @ 57600bps 2.5m (8ft) @ 115200bps
RS485 Communication interface	
Type of interface	1 RS485 serial port standard TIA/EIA, with galvanic insulation. External termination resistor required (120 Ω)
Electrical signals	DATA+ (A), DATA- (B)
Settings	Baud rate selectable by parameter: 300, 600, 1200, 2400, 4800, 9600* , 19200, 38400, 57600, 115200 Parity: None* , Even, Odd Stop bit: 1* ,2 * Default Setting
Type of transmission	Modbus RTU Master
Insulation voltage	Max operating 560Vdc 1KVdc on transient < 60s.
CAN bus Communication interface* (OPTIONAL)	
Type of interface.	1 CAN bus ports with galvanic insulation 120Ω internal termination resistance fitted
Rated impedance.	120Ω.
Insulation voltage.	Max operating 560Vdc. 1KVdc on transient < 60s.
USB 2.0 Communication interface	
Type of interface	1 porta seriale USB2.0 non isolata utilizzabile in modalità Function o in modalità Host
Function Mode	Connection to PC by Sices Driver USB type Mini-B connector Type of transmission Modbus RTU Slave

Host Mode	Pen Driver Management USB type A connector Maximum output current 350mA@5Vdc with automatic overload protection		
Maximum distance	6m (20 feet)		
External battery backup input			
	One input for the connection with a lead battery with nominal voltage 12 or 24V or equal to the nominal supply voltage of the device supplied on the terminal J1-1.		
Nominal voltage	12Vdc o 24Vdc		
Maximum charging current	540 mA		
Frequency	5 kHz		
Measurement resolution	12 Bit		
Maximum nominal capacity	6Ah		
Radio Access Technology (RAT)			
Protocol Stack	3GPP Release 13		
Radio Access Technology (RAT)	2G GSM / GPRS / EGPRS LTE Cat. M1  LTE Cat. NB-IoT 		
Bands and Frequency Range	Bands Used	Uplink Frequency	Downlink Frequency
	GSM850*	824~849 MHz	869~894 MHz
	EGSM900	880~915 MHz	925~960MHz
	DCS1800*	1710~1785 MHz	1805~1880 MHz
	PCS1900	1749,9~1784,9 MHz	1844,9~1879,9 MHz
	LTE+FDD B1*	1920~1980 MHz	2110~2170 MHz
	LTE+FDD B2	1850~1910 MHz	1930~1990 MHz
	LTE+FDD B3*	1710~1785 MHz	1805~1880 MHz
	LTE+FDD B4	1710~1755 MHz	2110~2155 MHz
	LTE+FDD B5	824~849 MHz	869~894 MHz
	LTE+FDD B6	830~840 MHz	875~885 MHz
	LTE+FDD B8*	880~915 MHz	925~960 MHz
	LTE+FDD B12	699~716MHz	729~746MHz
	LTE+FDD B13	777~787MHz	746~756MHz
	LTE+FDD B18	815~830 MHz	860~875 MHz
	LTE+FDD B19	830~845 MHz	875~890 MHz
	LTE+FDD B20*	832~862MHz	791~821MHz
	LTE+FDD B26	814~849 MHz	859~894 MHz
	LTE+FDD B28*	703~748MHz	758~803MHz
LTE+FDD B39	1880~1920 MHz	1880~1920 MHz	

	* Bands used for RED certification B39 Supported only with LTE Category M1	
Transmitting power	GPRS power class: GSM850: 4 (2W) EGSM900: 4 (2W) DCS1800: 1 (1W) PCS1900: 1 (1W)	EDGE power class: GSM850: E2 (0.5W) EGSM900: E2 (0.5W) DCS1800: E1 (0.4W) PCS1900: E1 (0.4W)
	LTE power class: CAT.M1 and NB-IoT: 3 (0.25W)	
Data Transmission Throughput	LTE CAT-M1: Uplink up to 375kbps (Half duplex) Downlink up to 300kbps (Half duplex) Uplink up to 1Mbps (Full duplex) Downlink up 1Mbps (Full duplex)	LTE NB-IoT: Uplink up to 66kbps Downlink up to 34kbps
	EDGE Class: Uplink up to 236.8Kbps Downlink up to 236.8Kbps	GPRS: Uplink up to 85.6Kbps Downlink up to 85.6Kbps
Antenna RF	50 Ohm nominal characteristic impedance	
	The maximum gain allowed to antenna and its cable is 3 dBi	
	VSWR < 2.5	
	Please note that the terminal should be installed and operated with a minimum distance of 30cm between the antenna connected to the terminal and any human bodies. Also, the transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.	
Global Navigation Satellite System (GNSS)		
Frequency range	GPS 1575.42 ± 1.023Mhz	GLONASS 1597.52~1605.92Mhz
	Galileo 1575.42 ± 2.046Mhz	BeiDou 1561.098 ± 2.04 Mhz
Receiver type	16-channel C/A Code	
Sensibility	Tracking: -167 dBm (GPS) /-157 dBm (GLONASS) Reacquisition: -157 dBm Cold starts: -148 dBm	
TTF (open sky)	Hot start <1s, Cold start<35s	
Accuracy (open sky)	2,5m (CEP50)	
Antenna GNSS	50 ohm nominal characteristic impedance An amplified antenna must be used. The plug of the device provides automatically the power supply required (Max 35mA@3,3Vdc)	
Inertial motion sensors		

Accelerometer 3D	<p>Linear acceleration measurement range: $\pm 2/\pm 4/\pm 8/\pm 16$ g full scale</p> <p>Linear acceleration sensitivity:</p> <p>FS = ± 2 g 0,061 mg/LSB</p> <p>FS = ± 4 g 0,122 mg/LSB</p> <p>FS = ± 8 g 0,244 mg/LSB</p> <p>FS = ± 16g 0,488 mg/LSB</p>
Gyroscope 3D	<p>Angular rate measurement range: $\pm 125/\pm 250/\pm 500/\pm 1000/\pm 2000$ dps full scale</p> <p>Angular rate sensitivity:</p> <p>FS = ± 125 g 4,375 mbps/LSB</p> <p>FS = ± 250 g 8,75 mbps/LSB</p> <p>FS = ± 500 g 17,50 mbps/LSB</p> <p>FS = ± 1000g 35,00 mbps/LSB</p> <p>FS = ± 2000g 70,00 mbps/LSB</p>
Internal Battery optional	
	Lithium Ion internal rechargeable battery.
Nominal voltage	3,7 Vdc
Nominal capacity	1100 mAh or 1800 mAh
Charging voltage	4,20V $\pm 0,05$ V
Integrated protections	<p>Short-circuit protection</p> <p>Overcharge protection</p> <p>Protection against over discharge</p>
Recharge time	about 12 hours with empty battery
Charge current	0,1C (200 mA)
Charging conditions	CC/CV
Thermistor	10K NTC
	<p>Battery life depends on several factors: ambient temperature, frequency of data transmission and signal strength of the mobile network.</p> <p>Minimum duration of about 9 hours with data transmission interval set to 3 minutes and good signal level. Longer life using power saving mode.</p>
Environmental conditions	
Operating temperature	<p>Without internal battery</p> <p>From -25°C to +70°C</p> <p>With internal battery*</p> <p>From -20°C to +55°C</p> <p>*Internal battery is recharged from 0°C to +45°C</p>
Storage temperature	<p>Without internal battery</p> <p>From -30°C to +80°C</p> <p>With internal battery</p> <p>From -20°C to +45°C (for less than 1 month)</p> <p>From -20°C to +35°C (for less than 6 month)</p>
Relative humidity	<80% without condensation
Altitude of operation	0 to 2000 m above sea level
Pollution degree	PD2

Box	
Size	150mm (L) x 93mm (H) x 55mm (P)
Protection degree	IP 20 EXTERNAL
Mounting	DIN guide (EN60715) according to DIN 43880 regulations
Material	ABS resin
Extinguishing degree	UL94 class HB
Weight:	310g With internal battery
Compliant	EN 61010-1:2010+ A1 EN 50385:2017 EN 61326-1:2013 EN 301 489-1 V.2.2.3 EN 301 489-19 V.2.1.0 EN 301 489-52 V.1.1.0 EN 301 511 V.12.5.1 EN 301 908-13 V.11.1.2 EN 303 413 V.1.1.1

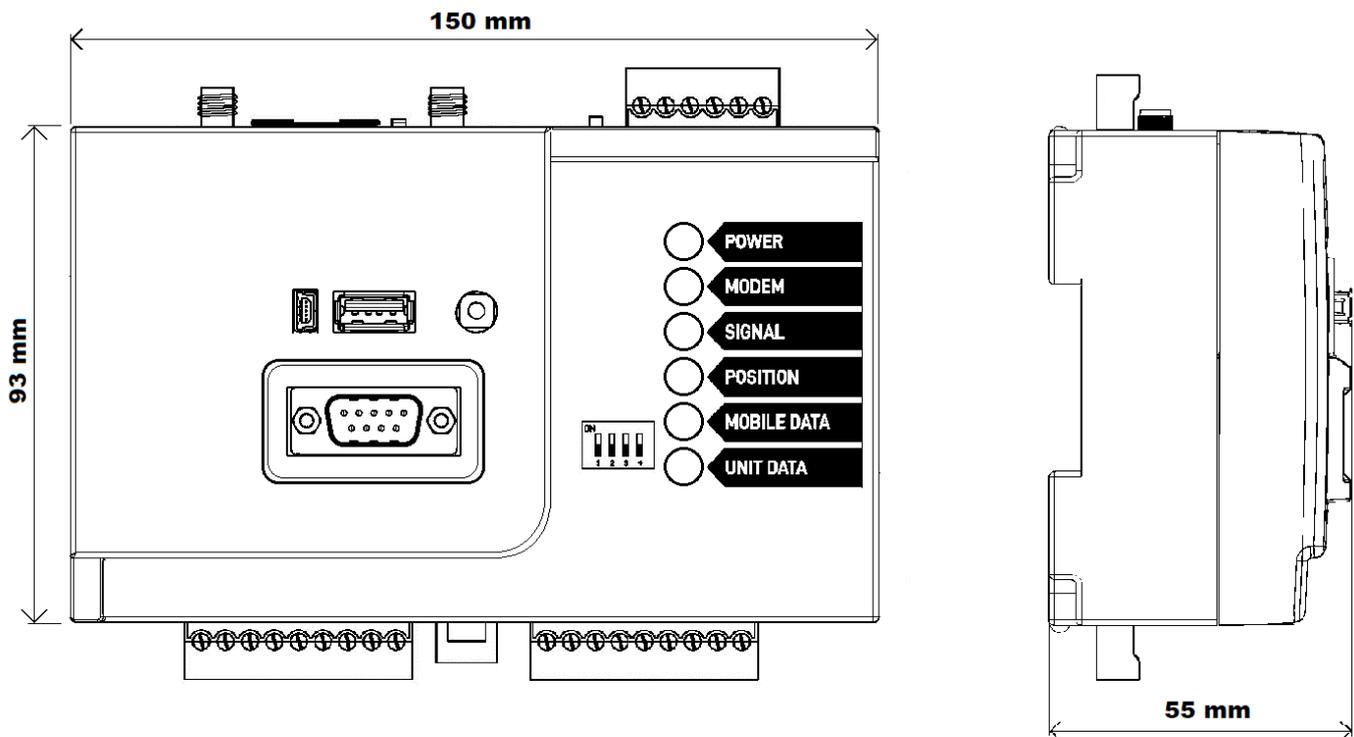
4. Installation

4.1 Package content

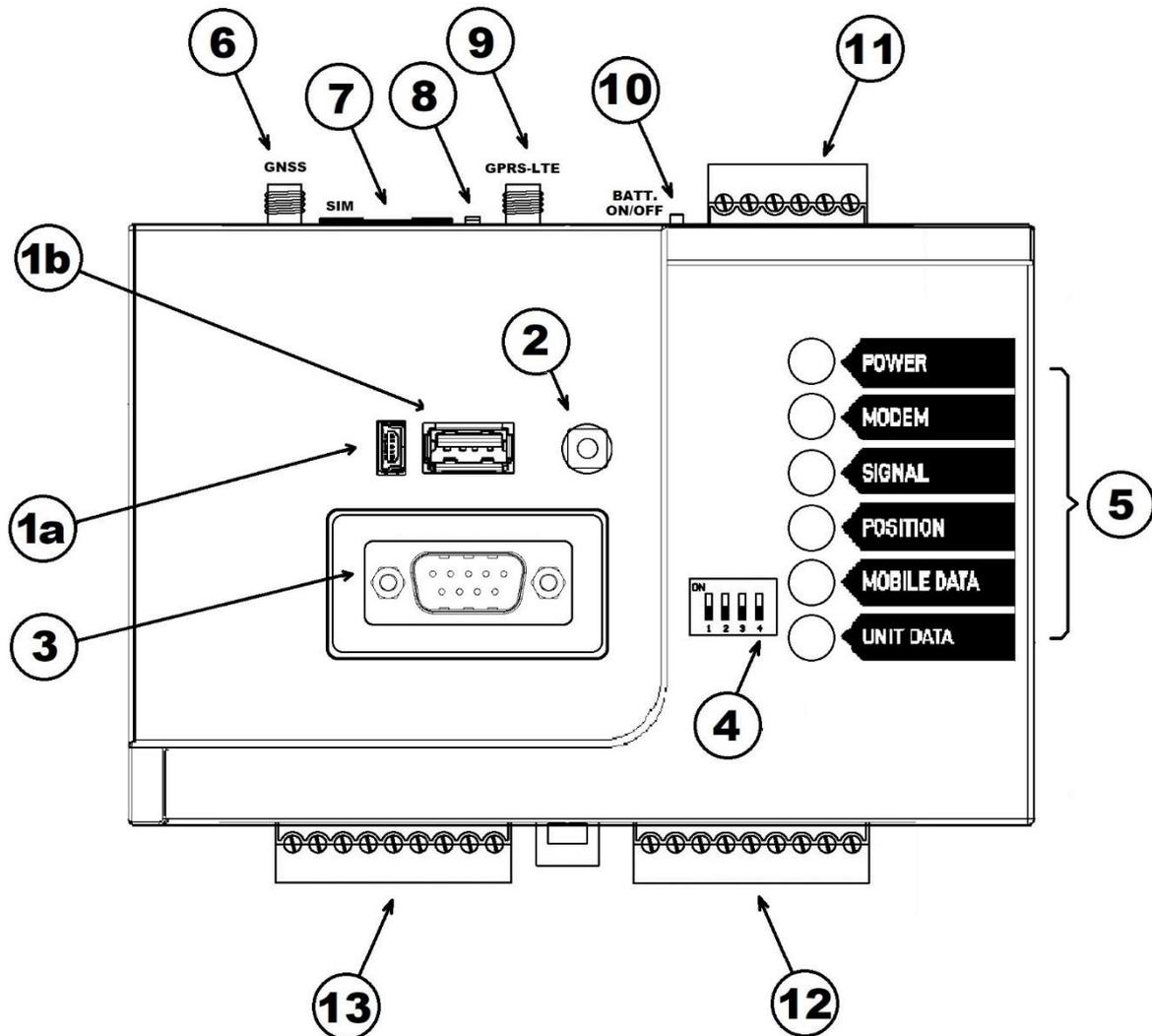
- 1 **REWIND (Remote Wireless Network Device)**.
- 1 x **GSM+LTE and GPS/GLONASS (if requested)** combined antenna.
- 1 x Installation Guide
- 1 x 2 mt. serial RS232 f/f Crossover cable (on request).

4.2 Device Dimensions

The device is designed to be mounted on a **DIN 43880** guide in upright position. Proper operation requires adequate ventilation. Avoid mounting over and/or close to heat sources.



5. Connections



LEGENDA REWIND 3

Fig. 1 - REWIND Indications

1. **USB port**
 - a. Function
 - b. Host
2. **AUX Button**
3. **RS232 Serial Port**
4. **Dip Switches**
5. **Led Indicators**
6. **GNSS antenna SMA**
7. **SIM Holder**
8. **SIM Eject Button**
9. **GSM-LTE antenna SMA**
10. **On/Off Switch for internal battery**
11. **J1 Connector: Supply, Analogue Input, External backup battery**
12. **J3 Connector: Digital inputs:**
13. **J2 Connector: Digital Outputs, Serial RS485, Canbus***

*optional

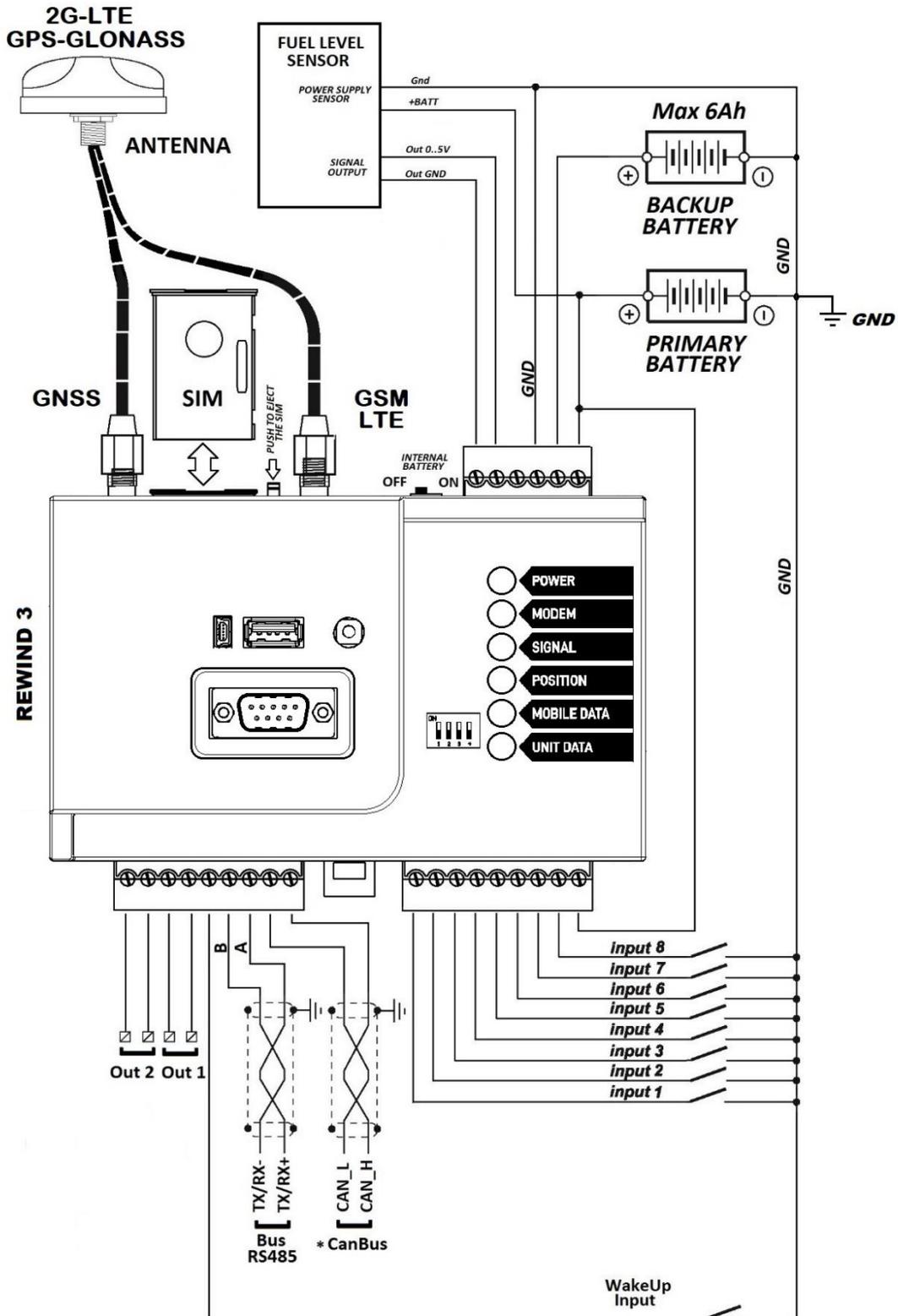


Fig. 2 - Connections diagram

5.1 J1 Connector (Ref. 11)

- Female connector 6 poles, step 3.81, green colour
- Solid wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Strands wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Max tightening: 0.2/0.25 Nm (1.77/2.21 lbf in)
- Stripping length: 5 ÷ 6 mm (.20 ÷ .24 in)

Connector	Terminal Nr.	Pin	Function
J1 Ref. 11	1	+BATT. MAIN	Positive input main supply (8...32 Vdc)
	2	+BATT. BACKUP	Positive input 6Ah external backup lead battery at 12 or 24Vdc or equal to the voltage applied on J1 terminal 1.
	3	-BATT. MAIN	Negative input main supply and/or backup battery
	4	-BATT. BACKUP	Negative input main supply and/or backup battery
	5	IN 0..5V	Analogue measure input in voltage from 0 to 5V with dedicate ground reference on J1 terminal 6
	6	IN GND	Dedicate ground input at analogue input IN 0..5V

5.1.1 Device supply

Connect the device DC supply to the terminal 1 of J1 (positive input, +Vbatt) and terminal 3 of J1 (negative input, GND). Even if the device is protected by an internal self-resetting fuse, it's compulsory to use a 1A protection fuse at J1 terminal 1 (+Vbatt).

The supply voltage when using the device is the one of the genset starting battery; it can be supplied also by a specific power supply.

 **WARNING!** In compliance with the safety rules, you must guarantee a mains insulation not lower than a transformer one, in conformity with the rule IEC61558-2-6 or equal.

 **INFORMATION!** During the installation, connect the battery positive as last operation.

5.1.2 External Backup battery

Connect the external backup battery to the terminal 2 of J1 (positive input, +Vbatt) and of the terminal 4 of J1 (negative input).

An internal circuit allows to keep the backup battery always protected.

The nominal voltage of the backup battery (12Vdc or 24Vdc) must be equal to the supply nominal voltage of the device.

The external battery must have maximum capacity of 6Ah.

5.1.3 0-5Vdc Analogue input

The device is equipped with an analogue input for voltage signals; the measurement range is included between 0 and 5VDC.

Connect the positive input of the analogue measure to the terminal 5 of J1 and the ground reference to the terminal 6 of J1. The voltage to measure must be referred to the same potential of the supply negative J1-3, GND; it is better to supply the device or the transducer with the same source that supplies Rewind.

 **WARNING!** In compliance with the safety rules, you must guarantee a mains insulation not lower than a transformer one, in conformity with the rule IEC61558-2-6 or equal.

5.2 J2 Connector (Ref. 13)

- Female connector 9 poles, step 3.81, green colour
- Solid wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Strands wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Max tightening: 0.2/0.25 Nm (1.77/2.21 lbf in)
- Stripping length: 5 ÷ 6 mm (.20 ÷ .24 in)

Connector	Terminal Nr.	Pin	Function
J2 Ref. 13	1	OUTPUT 2	Open clean contact relay 2 (max 0.5A 30V)
	2	OUTPUT 2	Common clean contact relay 2 (max 0.5A 30V)
	3	OUTPUT1	Open clean contact relay 1 (max 0.5A 30V)
	4	OUTPUT 1	Common clean contact relay 1 (max 0.5A 30V)
	5	RESERVED WAKE-UP	Sleep Mode Reserved digital input
	6	RS485 B	Inverting Receiver Input A/Driver Output A
	7	RS485 A	Noninverting Receiver Input A/Driver Output A
	8	CAN_L*	LOW-level CAN voltage input/output *Optional
	9	CAN_H*	HIGH-level CAN voltage input/output *Optional

5.2.1 Relay Outputs

The device is equipped by two clean contact relay outputs NO (max 0.5A 30V) The maximum voltage applicable with reference to GND is 30VDC; higher voltages or currents need an external relay with proper characteristics.

5.2.2 WAKE-UP Input

The device is set with a **non-insulated** digital input that can be activated with a connection to the Rewind supply negative (J1-3 GND)

In the future FW revisions, this input will be available to be used to wake up Rewind from the **Sleep Mode**, with an external electrical signal that can be acknowledged even in case of no battery voltage.

Indeed, in case of no external battery voltage, the Rewind opto-insulated digital inputs may not work.

Rewind, supplied by the sole Lithium Ion internal battery (optional), would be able to wake up by means of this input and exit the Sleep Mode.

5.2.3 Insulated RS485 interface

The device is equipped with a non-insulated RS485 interface. On terminal 7 and 6 of J2, connect the signal A (Noninverting Receiver Input A/Driver Output A) and the signal B (inverting Receiver Input B/Driver Output B) of RS485.

Connect the devices on the data line, avoiding star connections; ensure that the first and last device on the line have a 120 ohm termination resistor. In case REWIND is the first or last device, ensure to connect a 120 ohm 1/2 W resistor on terminals 6 and 7 of J2.

This electrical connection also requires a 120 ohm shielded cable.

The default serial port is set as: **Modbus RTU Master, 9600,N,8,1.**

 **WARNING! Only one Master port can be selected. By the parameter "P.1101 Master serial port", it is possible to select the ports COM1 (RS232) or COM2 (RS485).**

5.2.4 Insulated CANBUS interface (optional)

This interface is used for the connection of auxiliary devices with CANBUS line.

The CAN bus interface is galvanically isolated.

Connect the shielded cable shield to the protective or signal ground on both sides. CAN bus requires a 120 Ohm terminating resistor on both ends of the cable. The terminating resistor is integrated in the REWIND.

The use of specific shielded cable is required (e.g. HELUKABEL 800571). The maximum distance of the CANBUS line depends on the selected baud-rate.

5.3 J3 Connector (Ref. 12)

- Female connector 9 poles, step 3.81, blue colour
- Solid wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Strands wire section: 0.05 ÷ 1.5 mm² (IMQ) 30÷14 AWG (UL)
- Max tightening: 0.2/0.25 Nm (1.77/2.21 lbf in)
- Stripping length: 5 ÷ 6 mm (.20 ÷ .24 in)

Connector	Terminal Nr.	Pin	Function
J3 Ref. 12	1	IN1	Digital input Nr.1
	2	IN2	Digital input Nr.2
	3	IN3	Digital input Nr.3
	4	IN4	Digital input Nr.4

Connector	Terminal Nr.	Pin	Function
	5	IN5	Digital input Nr.5
	6	IN6	Digital input Nr.6
	7	IN7	Digital input Nr.7
	8	IN8	Digital input Nr.8
	9	COMM. INPUT	Digital input common connectable to the main supply positive or negative.

On this connector there are 8 opto-insulated digital inputs.

The digital inputs common is available on terminal 9 of J3, and it is possible to connect both positive and negative of the REWIND main supply voltage and both positive and negative of an external DC second source.

If the common terminal 9 of J3 is connected to positive, the inputs will be activated by connecting the input terminals 1..8 of J1 to negative (IN1..IN8).

If the common terminal 9 of J3 is connected to negative, the inputs will be activated by connecting the input terminals 1..8 of J1 to positive (IN1..IN8).

The maximum voltage applicable between the common terminal 9 of J3 and the single inputs (terminals 1..8 of J3) is max ± 32 VDC.

The maximum insulation voltage, with reference to the device supply negative (terminals 3 or 4 of J1-GND) is max. 840 Vrms or 1187 VDC.

5.4 RS232 Connector (Ref. 3)

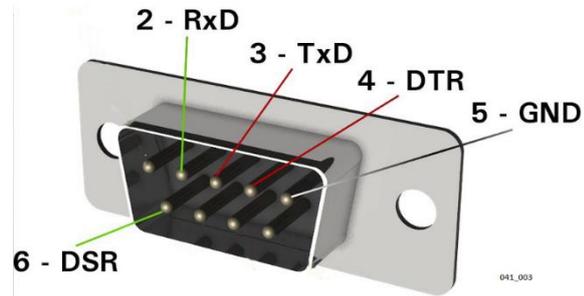
- Serial standard port TIA/EIA RS232 **not insulated**.
- Connector DB 9 poles male type CANON
- Max distance 12m (39 feet).

Rewind is equipped with a serial port suitable with the specifications EIA-RS232. It can be externally accessed through the connector DB 9 poles male of the same type of the ones used on PC. This serial port can be used for the MODBUS RTU communication towards the SLAVE device or the PC for Programming/Settings: by default, it is set as **Modbus RTU Master, 9600,N,8,1**.

The connector pinout is standard, as shown below:

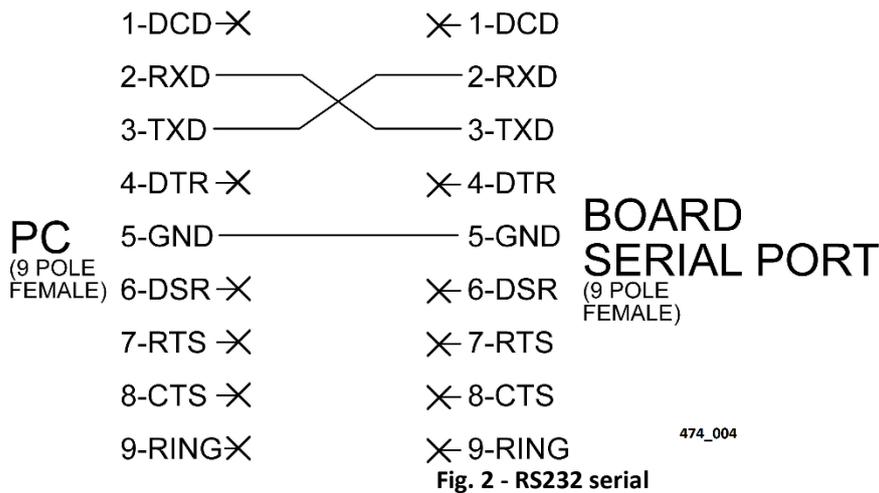
Pinout	Function
1	N.C.
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	N.C.
8	N.C.

9	N.C.
---	------



The use of this serial line is allowed only for the devices of the same control panel or, alternatively, for devices that are not subject to external overvoltage and supplied by the same DC supply power of Rewind.

In order to connect directly a PC or another RS232 equipment to the devices, you need to use a crossover cable CANON 9 poles female on both terminals, as the following connection diagram:



Alternatively, it is possible to use a Crossover cable available with the following Mecc Alte code **E09000000048 CROSS OVER RS232 DB9P F/F MT2 AT CABLE**.

5.5 USB Function Connector (Ref. 1a)

- USB2.0 Port function for the connection with PC
- Mini-USB B type connector
- Max distance 6m (20 feet)

Rewind is equipped with a USB 2.0 Function port (Slave).

The specifications of the USB protocol do not allow its use in permanent industrial field, because of the limited cable length and the high sensibility to electrical disturbances also on the PC. For this reason, **the USB connection cable has to be inserted only when it is necessary to work on the device and it has to be removed from the connector when the operation is over.**

For the USB connection, it is necessary to use a cable USB-A male/USB Mini-B male.



The connection through the USB line with a PC is used for two purposes:

- Insertion of the device firmware
- Parameters programming

The insertion/replacement of the device firmware is a specific Mecc Alte operation; besides the operating FW to insert, it requires a particular procedure and proper programs and usually it must not be carried out by the installer, except for specific cases in agreement with Mecc Alte.

The USB port can be used for the parameters programming with the program BoardPrg3, as alternative to the RS232/RS485 serial connection.

It is necessary to install the driver **CDC_Sices_Win.inf** supplied by Mecc Alte on the PC; for the driver installation, refer to document [5] (**only for operating systems before windows 10**).

Once the driver is installed, the PC will acknowledge the REWIND device as a new serial port, which has to be used exactly as a RS232 serial port.

5.6 USB HOST Connettor (Rif. 1b)

- USB2.0 Host port for Pen Driver management (external USB memory)
- USB type A connector.

This USB port can be used to connect a USB stick with a maximum supply current of 350mA@5Vdc. If the power consumption exceeds the maximum value, the port is automatically deactivated.

5.7 GSM-LTE (Ref.9) and GNSS (Ref.6) Connectors

- RF SMA male Connectors
- Typical impedance 50 ohm

The device is equipped with two RF connectors that are used for the connection of the external GSM and GPS antennas.

The connectors are SMA female with nominal impedance 50 ohm.

J3 Ref. 9	GSM/LTE	Female SMA connector for mounting GSM/LTE (700-960 Mhz and 1710-2655 Mhz).
J4 Ref. 6	GNSS	Female SMA connector for mounting GPS (Global Position System) antenna 1574.4~1576.44 MHz (L1) and GLONASS 1598~1606 MHz

Connect the antennas when the device is off; let the cable pass through the lid holes paying attention not to invert the two connectors between themselves. **Tighten the connectors by hand without using wrenches or pincers.** (fig.5)

GSM/LTE (700-960/1710-2655 MHZ) antenna must be connected to the **GSM-LTE SMA** plug on the Link device; use only omnidirectional antennas.

- The maximum gain allowed to antenna and its cable is 3 dB.
- The impedance of the antenna must be 50 ohm.

It is not allowed to connect the antenna directly on the plug but a minimum of 3 m of proper coaxial cable is required.

GPS antenna or **GPS+GLONASS** antenna must be connected to the **GNSS SMA** plug on the link device. Use only active antennas with impedance of 50 ohm.

The GPS plug of the Link device provides automatically the power supply required (Max 35mA@3,3Vdc).

A combined GSM/LTE+GPS/GLONASS or GSM/LTE+GPS antenna can be used.

In this case both GPS/GLONASS and GSM/LTE antennas are integrated in one body; they can be ordered together with REWIND devices.

 **Warning: The wrong connection of the antennas to the device may cause the permanent failure of both antennas and RF modules. Be warned that the two connectors are the same.**

To connect the external antenna proceed as follows:

Ensure the **REWIND is Off**, and disconnect power. In case an optional internal battery is installed, ensure also to switch off the device through the switch **S1 (Ref.10)**.

Connect the two SMA male connectors of the GSM/LTE and GPS/GLONASS external antennas to the related SMA female connectors screwing them clockwise.

Place the antennas according to manufacturer instructions, looking for a position suitable for the optimal reception of the GNSS and GSM-LTE signals.

 **Warning: the mounting position of the antenna is important for a good functioning of the GNSS receiver. The antenna must have a full view of the sky to provide a visual line with the highest number of satellites. Indoors, the SATELLITE signal may not be available.**

 **Warning: In case of problems, do not force the connector, but check the proper placement.**

 **Warning: A separation distance of at least 30 cm (11.81 inches) between the GSM/LTE antenna and the body of the user and other persons must be maintained at all times.**

 **Warning: The maximum gain allowed for the GSM/LTE antenna and its cable is 3 dB. It is not allowed to connect the antenna directly to the connector but a minimum of 3 m cable is required.**

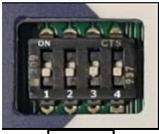
6. Indicators (Ref. to fig. 1)

LED Off	LED steady On	LED flashing
□	■	◻

Signaling	Function
<p>"POWER"</p>  <p>Rif. 5</p>	<p>■ ON: Board powered.</p>
	<p>□ OFF: Board not powered.</p>
	<p>◻ Two rapid flashes each 10 seconds indicate the "SLEEP MODE" mode (Period 10s, Time On 0 s)</p>
	<p>◻ Two rapid flashes each 5 seconds indicate the "POWER SAVE" mode (Period 5s, Time On 0,2 s)</p>
<p>"MODEM"</p>  <p>Rif. 5</p>	<p>□ OFF: The GPRS/LTE module is not powered or in power save mode.</p>
	<p>◻ Flashing with 64ms ON and 800ms OFF: the GPRS/LTE module is in the search or access process to the mobile network but is not yet registered.</p>
	<p>◻ Flashing with 64ms ON and 3s OFF: the GPRS/LTE module is correctly registered on the mobile network and is in IDLE mode. No calls in progress.</p> <p>◻ Flashing with 64ms ON and 300ms OFF: the GPRS/LTE module is registered and exchanges data on the mobile network. GPRS/LTE module is in Active TX mode.</p>
<p>LED 4</p> <p>"SIGNAL"</p>  <p>Rif. 5</p>	<p>◻ When flashing, it signals the view mode set to "MOBILE NETWORK SIGNAL". The glowing LEDs "LED1, LED2, LED3" indicate, from low to high, the received GSM signal. LEDs can have 4 statuses: OFF, flashing 25% on, flashing 75% on, ON. In this way, it is possible to have up to 12 levels of signal. When the 3 LEDs are all on, the maximum level of signal is reached. Examples:</p> <p style="margin-left: 40px;">LED1 OFF, LED2: OFF, LED 3: OFF → Poor signal or absent</p> <p style="margin-left: 40px;">LED1: lamp.75%, LED2: OFF, LED3: OFF → Low signal</p> <p style="margin-left: 40px;">LED1 ON, LED2: lamp. 25%, LED3: OFF → Fair signal</p> <p style="margin-left: 40px;">LED1 ON, LED2: ON; LED3: lamp.25% → Good signal</p> <p style="margin-left: 40px;">LED1 ON, LED2: ON; LED3: ON → Excellent signal</p>
	<p>◻ When LED2 flashes quickly to indicate an error after a transmission attempt, at the same time LED4 indicates:</p> <p style="margin-left: 40px;">lamp. 25% → APN Error (does not connect to APN)</p> <p style="margin-left: 40px;">lamp. 50% → SERVER Error (does not connect to server)</p> <p style="margin-left: 40px;">lamp. 75% → Server response error (connects, but server does not respond or wrong response)</p>
	<p>□ OFF: It indicates the view mode set to "DISPLAY STATUS". The LEDs "LED1, LED2, LED3" indicate the operational status of the GPRS/LTE, GNSS and MODBUS modules.</p>
<p>LED 3</p> <p>"POSITION"</p> 	<p>■ ON: GNSS module is working and has FIX. The number of satellites and their signals are sufficient to determine the correct geographical coordinates of the device.</p>
	<p>◻ Flashing: The GNSS module is currently searching for satellites. This flashing condition will persist until a minimum number of satellites (with sufficient signal) are received to do the FIX and determine the position.</p>

Signaling	Function
Rif. 5	<input type="checkbox"/> OFF: GNSS module is not communicating. Device in POWER SAVE status or SLEEP MODE status.
<p>LED 2 "MOBILE DATA"</p> 	<p><input checked="" type="checkbox"/> ON: GPRS connection Active (connected to APN with assigned IP address), packet data successfully sent to the Server. GPRS/LTE module is in Active TX mode.</p> <p><input checked="" type="checkbox"/> 2 rapid flashes repeated each 1 sec. SIM not inserted or not valid. Check if the SIM is present and inserted correctly (see Paragraph 8.1).</p>
<p>Rif. 5</p> <p>LED 2 "MOBILE DATA"</p> 	<p><input checked="" type="checkbox"/> Fast flashing 50% (period 0.2 sec), GPRS connection attempt to "SERVER" failed.</p>
<p>Rif. 5</p>	<p><input checked="" type="checkbox"/> Slow flashing 50% (period 0.6 sec), GPRS connection attempt to "SERVER" in progress.</p>
Rif. 5	<p><input type="checkbox"/> OFF: No data dispatch to "SERVER" in progress. Device in POWER SAVE status or SLEEP MODE status.</p>
<p>LED 1 "UNIT DATA"</p> 	<p><input checked="" type="checkbox"/> ON: MODBUS RTU serial communication in progress. The connected controller (via serial Rs232 or Rs485) responds correctly to the Modbus requests of the Rewind.</p>
Rif. 5	<p><input type="checkbox"/> OFF: MODBUS RTU serial communication in standby. The controller does not react to the Rewind's requests, or no controller has been configured. Device in POWER SAVE status or SLEEP MODE status.</p>

7. Pushbuttons and DIPSWITCHES (ref. to fig. 1)

Object	Function
<p>Buttons</p> <p>AUX</p>  <p>Rif. 2</p>	<p>This button, if pressed less than 2 seconds with the powered device in normal operation, allows the change of mode between "STATE DISPLAY" and "MOBILE NETWORK SIGNAL".</p> <p>Pressing the AUX button for 2 seconds and less than 5 (LED2 fixed on) triggers the sending of a data packet (event: "REQUIRED DATA-AUX"), test function.</p> <p>Pressing the AUX button for more than 5 seconds (alternate flashing of LED1/LED3 and LED2/LED4), the device enters the programming mode.</p> <p>Press the button again in order to exit the modality.</p>
<p>DIPSWITCH</p> <p>SW701</p>  <p>Rif. 4</p>	<p>SW701 – 1: Reserved, leave on OFF.</p> <p>SW701 – 2: Reserved, leave on OFF.</p> <p>SW701 – 3: Reserved, leave on OFF.</p> <p>SW701 – 4: Reserved, leave on OFF.</p>
<p>SWITCH S1</p>	<p>Enable / Disable the internal battery. If the battery is charged, by turning the switch ON, the device turns on even with no external supply.</p>

Object	Function
 Ref. 10	

8. Boot procedure

⚠ Warning: Before performing the operations listed below, please ensure to power the device off (without external power supply and with the internal battery selector in the NO BATTERY position).

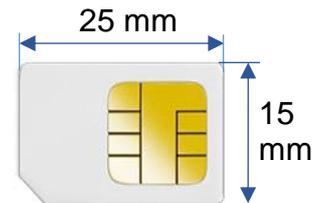
8.1 SIM Card

The device necessarily requires a SIM for its operation.

i **INFORMATION:** SIM is not included. Use a mobile operator of your choice.

8.1.1 SIM format

SIM Type: standard SIM Card type **Mini-SIM** (or **PLUG-IN**).



8.1.2 SIM phone plan

The selection of the SIM phone plan depends on some factors:

- **The geographical area in which the device is to be used.**
Also consider whether the device is used in national or international territory only. There are telephone operators that provide national roaming services: these are those telephone companies that do not have their own infrastructure in the local area and have to "use" another operator's network to guarantee their customers the possibility of data connections (Example: ThingsMobile, Eseye).
- **The mobile networks available in that area:** GPRS (2G), LTE Cat M1, NB-IoT.
- **The type of use**, i.e. which features of the device should be used between:



SMARTCLOUD



Email (require the use of SMARTCLOUD)



SMS



Mecc Alte SS3, BoardPrg4 – Direct connection by TCP/IP

- **The expected data traffic:** packet sending frequency, frequency and expected duration of the data connection.
- **The number of units that will be connected.** Many telephone companies provide bundled contracts distributed on several physical SIM cards: e.g. 10 GB that can be used on 50 SIM cards.

Practical examples:



Case 1: Use only data transmission to SMARTCLOUD, without direct TCP/IP connection.

With SMARTCLOUD, you can also use the functionality of e-mails.

With standard configuration (i.e. send data packet every 15 minutes, with basic or complete data packet, without keep alive). We recommend a minimum contract of 10 MByte/monthly. In this case you can use an M2M contract (generally cheaper but with reduced data traffic).



Case 2: TCP/IP connection only with Mecc Alte SS3 and SMS, without using SMARTCLOUD.

The SIM must necessarily be with PUBLIC IP (it must be reachable remotely). If FIXED IP is requested, it will be sufficient to set the IP address on the supervision only the first time. Otherwise the IP will change; to know the current one you can use the SMS "READ IP". The data volume depends exclusively on the expected monthly connection time. In the case of a daily connection of 30 min we recommend an internet contract of 500 MByte minimum. SMS messages need to be included (a telephone number must therefore be provided).



Case 3. Use of data transmission to SMARTCLOUD, with direct TCP/IP connection (Mecc Alte SS3, BoardPrg4). You can also use SMARTCLOUD to send emails.

With standard configuration and direct connection of approx. 10 min. per day we recommend an internet contract of at least 500 MB per month. The PUBLIC IP address (DENAT) must be requested.



Case 4. SMS only. Rewind is used only for sending SMS messages. It does not send data to SMARTCLOUD, it uses the TCP connection.

In this case you can request a SIM with phone number (voice or data) with SMS included. Internet data traffic is not required.

N.B.: In the Rewind parameters set the empty APNs (**P.1002** APN Primary, **P.1005** APN Secondary). In this way Rewind does not try to connect to the internet network, but only monitors SMS messages.



Case 5. Full use, then send data to SMARTCLOUD (up to 5 min.), TCP connection with Mecc Alte SS3 and BoardPrg3 (with 30 min. daily connection), sending SMS.

In this case we recommend an internet connection with a minimum monthly traffic of 500 MByte. With the addition of SMS (therefore, data or voice number).

If you wish to use the packet data functions (communicate with the device through TCP/IP, use of "SMARTCLOUD" system etc.) a SIM with an internet connection active plan is required. The SIM card in the device determines whether the device supports **GSM/GPRS/EDGE**, **LTE Cat M1** and **NB-IoT** or all these connections.

Make sure that your SIM supports the packet data network type you want to use. - i.e. if you want to use the module in **LTE Cat M1** network you have to confirm with the operator that the particular SIM card supports **LTE Cat M1** network.

The data traffic volume is a function of the transmission rate setting in the device by parameters **P.1030** and **P.1031**. For data transmission with default value, a minimum data traffic of 10Mbyte/month is required.

With higher transmission rates and/or with the Modbus/Tcp connection enabled, it may be necessary to increase the data traffic volume available on the SIM card.

***i* INFORMATION:** Some mobile companies use a NAT (“Network Translation Address”) system also for SIM cards, therefore the IP address received by “SMARTCLOUD” server is not usable for the connection with the plant. It is necessary to explicitly ask the network operator not to use the NAT on the SIM.

***!* Note:** Module is able to make and receive SMS*, make GPRS/EDGE/LTE traffic but is unable to make and receive voice calls.

***!* Important:** During operation, the REWIND device exchanges data at a configurable frequency and can be set for permanent connection.

Mecc Alte will not be held responsible for whatsoever problem or conflict arising from choosing an improper phone rate plan or a wrong device configuration.

Usually, the sending SMS* is not included in flat-rate Internet or data traffic. Contact your provider to know the cost of any SMS* sent.

*SMS: the networks on which cellular narrowband is deployed, do not always support SMS services over LTE NB-IoT or LTE Cat M1. Several operators have yet not deployed the SMS functionality for Narrowband. Contact your network provider for details.

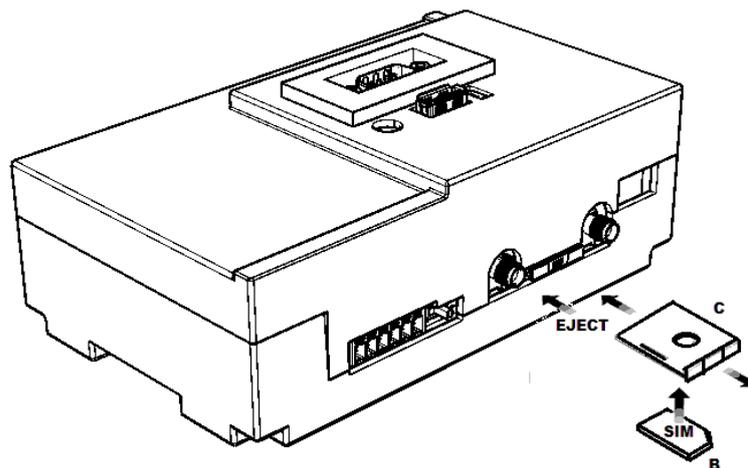


Fig. 3 - REWIND Indications

8.1.3 How to insert/extract the SIM card in the Rewind

REWIND supports Mini-SIM cards (PLUG-IN SIM). In order to avoid damaging the SIM card or losing information, we recommend you not to touch the SIM card golden chip (where contacts are).

Insert the SIM in the proper card holder as per the figure 3 and following the indications below:

1. Press the EJECT button with a screwdriver until the SIM card is ejected.
2. Extract the SIM card support and insert the SIM card (contacts facing downwards).
3. Insert the SIM card support again in the related slot.

Extract the SIM in the proper card holder as per the figure 3 and following the indications below:

1. Press the EJECT button with a screwdriver until the SIM card is ejected.
2. Extract the SIM card support and remove the internal SIM card.

3. Once the SIM card is removed, ensure to insert again the empty SIM card support in the slot.



Note: Using a mobile phone, remove any protection PIN from the SIM.

9. Parameters configuration

9.1 REWIND Configuration modes

REWIND can be set up in three different ways:

- Using **Board PRG** and connecting REWIND to your PC
- Via **SMS*** (you need the telephone number of the SIM Card inserted in the device)
- Via **Web** (visiting smartcloud.meccalte.com, section “Manage device” - “Parameters”)

9.1.1 Parameters configuration via Board PRG

The use of the device requires the parameters configuration first.

For the complete parameters list refer to the document **EAAM072200XA[1] (REWIND 3 parameters table)**.

The configuration requires the connection to a PC via RS232 serial (COM port) or via USB.

Refer to chapter 5.4 RS232 Serial Connector (Ref. 3) or to chapter 5.5 USB Connector (Ref. 1) to define the type of cable to use.

In case of USB connection, remember that the PC must have the driver **CDC_Sices_Win.inf** supplied by **Mecc Alte** installed (**only for operating systems before windows 10**); for the driver installation, refer to document [5] EAAP0457XXXA (USB driver installation guide).

Once the driver is installed, the PC will acknowledge the REWIND device as a new serial port, which has to be used exactly as a RS232 serial port.

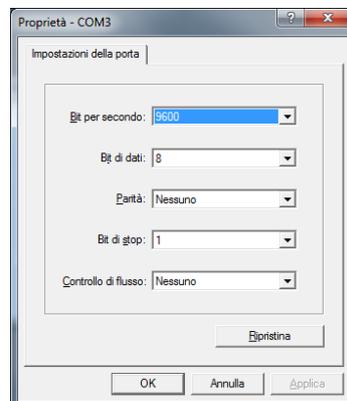
Use the program **BoardPrg (version 3.19 and higher)** to change parameters following the indications indicated below:

- Connect the SERIAL or USB cable between the PC and the REWIND device.
- Turn on REWIND and press “AUX”: hold it pressed for at least 5 seconds until the yellow Leds 1 and 3 are turned on alternating with the yellow Led 2 and 4.

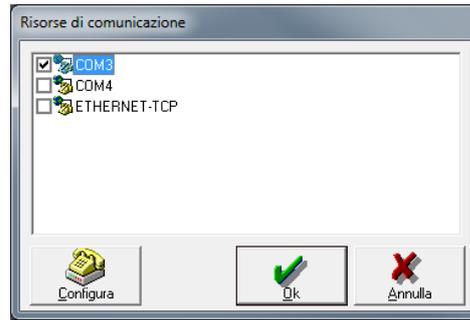


INFORMATION! In case of USB connection, it is not necessary to press the button “AUX”.

- Start the “BoardPRG 3.0” software or following version.
 - Enter “**Communication**”
 - **Select the communication resource**
 - Select the communication resource available on the pc (for example “COM3”).
 - Enter “**Configure**” and check that the serial communication parameters are the REWIND default ones: **9600, N, 8, 1**



- Confirm with OK



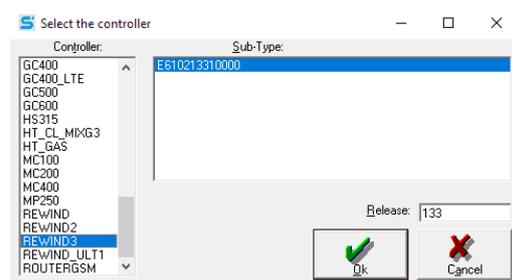
- Confirm with OK
- Enter “Communication”
 - Select the address
 - Set the REWIND address (by default is 1)
 - Confirm with OK



On the center and right lower side, you will see the settings configured before, that are **COM3**, **(9600,8,N,1)** and **Serial Address 1**: the closed message near the serial configuration indicates that the communication is not active yet.



- Enter “File”
 - Select “Select the device”
 - Select **REWIND3**, possible **Subtype** and indicate the **Revision of the device you have**.



- Confirm with **OK**
- Press “Connect” and check that on the lower right side the number of the transmissions increase.
- Press “Configuration” to open the list of PARAMETERS.
- Press “Read” to acquire the parameters on the REWIND2 device connected
- Press “Copy” to transfer the values read from the column “On the device” to the column “On the PC”.

***i* INFORMATION!** Check that LED1 “UNIT DATA” is on to indicate the correct communication.

⚠ Important: Read the parameters (Read command), and transfer the values to the New Value column, where you can edit them (Copy command).

Now, you can configure the device.

You may now save the configuration on a PC (Save), and reload it (Load) later to configure other modules in the same way.

Below you can find the **minimum requirement configuration parameters** to be set in order to allow the REWIND3 device to dialog with the Software SMARTCLOUD. Factory values of the supplied device refer to the use with services directly managed by Mecc Alte.

Refer to documents EAAM0470xxXA [1] (REWIND parameter table) and EAAM00458xx [4] (BoardPrg 3.xx guide) for the parameters configuration.

1) GPRS CONNECTION	
P.1001 GPRS data send enable	Set 1 to start data transmission to the server SMARTCLOUD. * Default Setting = 0 DISABLED
P.1002 Main APN (Access Point Name)	Enter the APN supplied by your ISP. If necessary, enter Username and Password using P.1003 – P.1004 * Default Setting = ibox.tim.it
P.1003 APN Main – User name (optional)	<i>Enter the Username, if required by the type of contract with the telephone operator</i> * Default Setting = “blank”
P.1004 APN Main – Password (optional)	<i>Enter the user Password, if required by the type of contract with the telephone operator</i> * Default Setting = “blank”
P.1008 GPRS network connection mode	0 = Disconnect the device after each data transmission. 1 = Leave the device permanently connected. Anyhow, it is suggested to leave this parameter set to 1. * Default Setting = 1 <u>The connection method affects the quantity of generated traffic that the mobile service provider can bill.</u>
P.1014 Mobile network mode	Configures the preferred Network Mode to: 0 = Automatic → automatic connection between GSM/GPRS/EDGE or LTE network. In this mode, the device decides independently, based on the available networks and signal strength, which type of network to connect. When first power up , it will search with the following priority: CAT-M > NB-IOT > GSM/GPRS/EDGE. Search time depends on signal strength and active mobile networks detect. It may be necessary to wait several minutes before the <u>first</u> connection to the mobile network is established.

	<p>1 = GSM/GPRS → connection to the GSM/GPRS/EDGE 2G network only. * Default Setting = "1 – GSM/GPRS"</p>
	<p>2 = LTE → connection to the LTE network only</p>
P.1015 LTE category	<p>Configures the preferred LTE network mode to: 0 = CAT-M → connection to the CAT-M1 network only. 1 = NB-IoT → connection to the NB-IoT network only. 2 = CAT-M and NB-IoT → automatic connection between CAT-M or NB-IoT network. * Default Setting = 2</p>
2) SERVER SMARTCLOUD	
P.1020 Main Server – IP address or Name	<p>Enter the port for the server dedicated to data transfer. SMARTCLOUD server: smartcloud.meccalte.com * Default Setting = "smartcloud.meccalte.com"</p>
P.1021 Server 1 – Port	<p>Enter the port for the server dedicated to data transfer. Mecc Alte Port: 53052 * Default Setting = 53052</p>
P.1030 Time for the data sending of engine on	<p>Enter the time interval you require to send data collected by REWIND with engine on. * Default Setting = 900</p>
P.1031 Time for the data sending of engine off	<p>Enter the time interval you require to send data collected by REWIND with engine off. * Default Setting = 3600</p>
P.1035 Time for the data sending of Keep Alive Network	<p>Insert the time you would like the messages KEEP ALIVE to be transmitted, which are sent periodically to maintain the connection active and to check possible variation on parameters. * Default Setting = 0</p>
P.1040 Data package type	<p>0 = Full → if REWIND is connected to a controller 1 = Simplified (not used) 2 = Base → if REWIND is NOT used with a controller, but using only the digital inputs of the device 3 = Extended (with tank) → if REWIND is used to obtain the level of an external tank 4 = Specific for PowerNet * Default Setting = 0</p>
P.1041 Communication events (value in hexadecimal)	<p>Insert in hexadecimal which events have to be transmitted: 1 = Alarms and deactivations * 2 = Warnings * 3 = Start * 4 = Engine stop * 5 = Mains failure 6 = Mains back</p>

	* Default Setting =0F
P.1050 Battery low voltage threshold (send event)	Insert the minimum battery voltage value below which an event must be sent. The battery value is acquired by the supply terminal of Rewind (terminal J1). The event of low battery can be acquired also via serial port by the monitored device if properly set at parameter P.1041. * Default Setting =12,1
P.1051 Delay for low battery voltage (0.0=disabled)	Set the time delay expressed in seconds after which an event must be sent. * Default Setting = 40
3) SERIAL PORTS	
P.1101 Master serial port	Select which is the master modbus serial port to use for the monitoring of the controller: 1 = COM1 – RS232 * 2 = COM2 – RS485 * Default Setting =1
P.1111 Baud rate COM1 P.1112 Configuration COM1	Set the configuration of the COM1 RS232 serial port. The serial configuration must be equal to the one set in the controller to connect. * Default Setting =9600,n,8,1
P.1121 Baud rate COM2 P.1122 Configuration COM2	Set the configuration of the Com2 Rs485 serial port. The serial configuration must be equal to the one set in the controller to connect. * Default Setting =9600,n,8,1
4) MODBUS CONTROLLERS	
P.1132 Connected boards serial polling delay	Set the time delay expressed in seconds that REWIND will have to wait before starting a new asking polling. * Default Setting =0.5
P.1161 Controller 01 - Modbus Address	Set the controller modbus address that must be connected. * Default Setting =1
P.1162 Controller 1 - Board type	Set the type of board to connect. 0 = None 1 = Mecc Alte controllers - Automatic identification. (DST4602, DST4602 Evolution, GC600, GC315, GC400, GC250, MC200, MC400, ATS115, HS315, RN200, DST4400, DST4601/PX, DST2600, GC310, GC350, GC500). 2 = DSE 5210

	<p>3 = DSE 7320 4 = DSE 7510 5 = DSE 5510 6 = not used 7 = Multimeter IME Nemo D4 8 = COMAP IL NT AMF25 9 = COMAP IG NTC BB 10 = ELCOS CAM-120 11 = CUMMINS PC 2.x (Diesel) 12 = POWERNET M200 13 = DEIF AGC-3 14 = DEIF ACG-3 CAN 15 = Woodward easYgen 3200 16 = Woodward easYgen 3200 CAN 17 = Caterpillar EMCP3 18 = Caterpillar EMCP4 19 = Cummins MCM3320 20 = Lovato RGK800 21 = Lovato RGK700/RGK610 - Coelmo Lexys/Giotto 22 = Lovato RGK610 - Coelmo Giotto 23 = CUMMINS PC 3.x (Gas) 24 = CUMMINS PC 1.x 25 = CUMMINS PS0500 26 = CUMMINS PS0600</p> <p>Set 0 to use REWIND with digital inputs only</p> <p>* Default Setting =1</p>
6) SMS and DATA CALLS	
P.1201 Communication events (Value in hexadecimal)	<p>Select the events (alarms, warnings, start/stop engine) to be transmitted via SMS or GPRS.</p> <p>1 = Alarms and deactivations * 2 = Warnings * 4 = Engine Start * 8 = Engine stop * 10 = Mains failure 20 = Mains back 40 = Operating Mode</p> <p>* Default Setting =0F</p>
P.1202 Number of rings before answering	<p>Set how many rings the REWIND device has to wait before answering the call. By setting 0, the call is ignored.</p> <p>* Default Setting =1</p>
P.1203 Numbers of SMS for each event	<p>Set how many SMS messages have to be sent automatically for each event. By setting 0, the sending is disabled.</p> <p>* Default Setting =1</p>

<p>P.1205 Filter on SMS receiving</p>	<p>If set to 1, it allows not to answer messages coming from telephone providers and to avoid error messages exchange that would occupy the device uselessly and charge the cost of the messages sent. Therefore, it is suggested to leave this filter enabled setting it to 1.</p> <p>* Default Setting =0</p>
<p>P.1206 SMS header – part 1 – Plant name</p>	<p>Set the plant header for SMS</p> <ul style="list-style-type: none"> 0- None 1- Plant name from Rewind (P.1700) 2- Plant name from board (for Mecc Alte controllers) 3- Plant name Rewind + Controller
<p>P.1207 SMS header – part 2 - controller</p>	<p>Adds board identifier to SMS header (useful in the case of several boards connected via RS485):</p> <ul style="list-style-type: none"> 0- None 1- Modbus address and board type (Ex: Axx DST4602) 2- Unit number and board type (Ex. Uxx DST4602) 3- Unit number only (Uxx) 4- Modbus address only (Axx)
<p>P.1210 P.1011 P.1212 P.1213 P.1214 P.1215 P.1216 P.1217 P.1218 P.1219 P.1220 P.1221</p>	<p>With these parameters it is possible to set up to 6 phone number for the event signalization. For each number it is possible to set whether to send a SMS (Type number = 1) for the event signalization. Set at least one phone number.</p> <p>* Default Setting Telephone Number (X) = “Blank” * Default Setting Type Number (X) = 0</p>
<p>7) DIGITAL INPUTS (with P.1040 Data package type = 2 Basic)</p>	
<p>P.1300 P.1310 P.1320 P.1330 P.1340 P.1350 P.1360 P.1370 Function</p>	<p>With these parameters it is possible to set the function to assign at each of the 8 insulated digital inputs available on the connector J3:</p> <p>0 = None *</p> <ul style="list-style-type: none"> 1 = Engine running 2 = Warning 3 = Shutdown 4 = Emergency stop 5 = Minimum Fuel Level 6 = Status 1 7 = Status 2 8 = Status 3 9 = Generic status 10 = Generic warning 11 = Generic alarm 12 = Generic deactivation <p>Usually, the inputs are configured if there is not a serial connection with the genset controller or in case it is necessary to acknowledge the statuses not available via serial port.</p>

	<p>* Default Setting =0</p>
<p>P.1301 P.1311 P.1321 P.1331 P.1341 P.1351 P.1361 P.1371 Polarity and coverage</p>	<p>For each input, it is possible to set the polarity with or without Oil coverage.</p> <p>0 = Normal* 1 = Inverted 2 = Normal with Oil coverage 3 = Inverted with Oil coverage</p> <p>By default, the inputs are considered active when a voltage is applied between the common terminal (J3-9 COMM. INPUT) and related input terminal (J3-1/8 INPUT1 / INPUT8). The logic status can be inverted with respect to the physical status by setting this parameter to 1.</p> <p>The possible oil coverage selected indicates that the input is considered active, after the time set in the parameter P.13X2, but only if 15 seconds have passed (oil coverage time) from the engine start (acknowledged by digital input).</p> <p>* Default Setting =0</p>
<p>P.1302 P.1312 P.1322 P.1332 P.1342 P.1352 P.1362 P.1372 Activation delay</p>	<p>For each input, it is possible to set a delay time between the physical activation of the input and the logic activation of the function Time is expressed in seconds.</p> <p>* Default Setting =0,1 sec</p>
<p>From P.1303 to P.1305 From P.1313 to P.1315 From P.1323 to P.1325 From P.1333 to P.1335 From P.1343 to P.1345 From P.1353 to P.1355 From P.1363 to P.1365 From P.1373 to P.1375</p>	<p>For each input, it is possible to set messages and related identification code:</p> <p>Activation message. Deactivation message. Event code.</p> <p>Default Setting = "blank"</p>
<p>9) GPS</p>	
<p>P.1500 GPS module Enabling</p>	<p>It allows to enable or disable the REWIND internal GPS localization module.</p> <p>0 = Disabled 1 = Enabled*</p> <p>If there is no need of automatic localization or Tracking, it is possible to disable the module in order to decrease consumptions. In this case, the parameters P.1501 and P.1502 allow to set fixed coordinates (Latitude and Longitude) for the plant localization.</p>

	* Default Setting = 1
P.1503 GPS Movement sensibility for creation of event	It allows to send an event of movement in case of acknowledgement of a variation of the position (in meters) that is higher than the value indicated in this parameter. If it is set to 0, the event is disabled. * Default Setting = 0
P.1504 Time for the data sending of Tracking	If it is set to 0, it sends an event for each movement. If it is >0, it sends the event when, if the sensibility expressed in P.1503 is exceeded, the time set has passed. * Default Setting = 0
12) Various	
P.1700 Plant name	Specify the name you wish to assign to the system This name will be displayed in SMS messages * Default Setting = 000000000000
P.1702 Local Time	Set the local time that will be used to calculate the LOCAL TIME to send messages to server. A unit corresponds to 15 minutes. Warning: this parameter is automatically updated when it is connected to the server SMARTCLOUD. The local time is assigned according to the timezone indicated on the unit. * Default Setting = 4

For further information, please consult the parameters table of the REWIND device EAAM0470xxXA [1].

Press “**Transmit**” and wait for the transmission of the data.

A green flag  for each parameter in the “Parameters” column confirms that the values set in the Rewind device are the same set on the PC.

In case of incongruence, a yellow triangle  signals the difference of values.

9.1.2 SMS Configuration

Note: Before this configuration, we suggest to add a unit (= genset, tower light, vehicle, etc) and to pair it to the proper device (REWIND) visiting SMARTCLOUD (smartcloud.meccalte.com). In this way, you will be able to visualize data concerning your unit.

In order to enable the GPRS connection, it is possible to one or more SMS to the telephone number of your SIM: It is possible to use the command “SIM” (which allows to set only the main parameters for the connection to SMARTCLOUD with just one SMS), or a series of SMS to the phone number of your SIM:

Note: Note: for each command correctly sent to REWIND, you will receive a confirmation SMS back “COMMAND EXECUTED”.

SMS FOR SMARTCLOUD

(Valid only for the modification of the basic parameters of the connection to the server SMARTCLOUD)

SIM ENAB,APN,APNUSER,APNPWD,SERVER,PORT,TCPENAB,PACKET

Example:

SIM 1,ibox.tim.it,,, smartcloud.meccalte.com,53052,1,0

ENAB=1	Enable the data sending to the server SMARTCLOUD (1=Transmit to SMARTCLOUD, 0=Do not transmit to SMARTCLOUD).
APN=ibox.tim.it	APN primary
APNUSER= none	user APN (optional)
APNPWD= none	password APN (optional)
SERVER= smartcloud.meccalte.com	name or server IP address
PORT=53052	server tcp port
TCPENAB=1	modbus/tcp enabled (the port is the one set 502)
PACKET=0	type of data package sent (0=complete)

Other parameters can be modified from the webpage or with the command SMS WRITE PARAMETER

SYNTAX RULES: the separator can be comma (,) or semi-colon (;).

Without leaving spaces (ex: ,,,) it indicates that the parameter is not set (the previous value remains).

Leaving one or more spaces instead (ex: , , ,) the parameter is canceled (blank).

The parameters (except for the first) can be omitted; for example, if you would like to set only the APN you can write:

SIM 1,ibox.tim.it

In order to disable the transmission to SMARTCLOUD, you will only need to write:

SIM 0

SINGLE SMS (Valid for all parameters)

SMS 1	WRITE PARAMETER 1002 apn i.e. WRITE PARAMETER 1002 ibox.tim.it
SMS 2	WRITE PARAMETER 1003 apnuser apnuser = apn user. Usually it is not required. i.e. WRITE PARAMETER 1003 12345
SMS 3	WRITE PARAMETER 1004 apnpwd apnpwd = apn password. Usually it is not required. i.e. WRITE PARAMETER 1004 12345
SMS 4	WRITE PARAMETER 1001 1 This SMS enables to send GPRS data.

Now, you can set up the other parameters visiting the website SMARTCLOUD (smartcloud.meccalte.com). Normally, these parameters are already set to share data with the server SMARTCLOUD. On the contrary, please send the following SMS:

SMS 5	WRITE PARAMETER 1020 Server name Server name = name or IP address of the server used.
-------	--

In case of SMARTCLOUD, the text should be:
i.e. WRITE PARAMETER 1020 12345

SMS 6 WRITE PARAMETER 1021 Port name
Port name = port of the server.
In case of SMARTCLOUD, the text should be:
i.e. WRITE PARAMETER 1021 53052

SMS 7 WRITE PARAMETER 1040 PacketNum
PacketNum = type of data sent.
0 = Full (Default) or 3 = Extended (It offers the possibility to monitor the level of an external tank)
i.e. WRITE PARAMETER 1040 3

Genset controller configuration:

SMS 8 WRITE PARAMETER 1162 GensetControllerNumber
GensetControllerNumber = model of the genset controller.
List of Genset Controller enabled:
0 = None
1 = Mecc Alte Genset Controllers (DST4400, DST4601/PX, GC3xx, GC5xx, DST4602). Automatic identification.
2 = DSE 5210
3 = DSE 7320
4 = DSE 7510
5 = DSE 5510
6 = not used
7 = Multimeter IME Nemo D4
8 = COMAP IL NT AMF25
9 = COMAP IG NTC BB
10 = ELCOS CAM-120
11 = CUMMINS PC 2.x 3.x
12 = POWERNET M200
13 = DEIF AGC-3
14 = DEIF ACG-3 CAN
i.e. WRITE PARAMETER 1162 1

SMS 9 WRITE PARAMETER 1161 Addr
Addr = Modbus address of the controller.
Default = 1
i.e. WRITE PARAMETER 1161 3

SMS 10 WRITE PARAMETER 1101 Enab
Enab = type of the serial port.
0 = RS232 (Default)
1 = RS485
i.e. WRITE PARAMETER 1101 1

Only in case of RS485:

SMS 11 WRITE PARAMETER 1121 Baud

Baud = baud rate (speed) of the serial port RS485.
i.e. WRITE PARAMETER 1121 19200

SMS 12 WRITE PARAMETER 1122 SetNumber

SetNumber = set up of the serial port RS485.
0 = 8 bit (Default), No parity bit, 1 stop bit
1 = 8 bit, parity bit, 1 stop bit
i.e. WRITE PARAMETER 1122 1

For any additional information regarding the parameters number, please consider the proper parameter table.

The general format for every command is: WRITE PARAMETER ParameterNumber Value

9.1.3 Web Configuration (only providing the first data transmission of the REWIND)

Visit the website smartcloud.meccalte.com, enter your USERNAME and PASSWORD and log in the private area of the Software SMARTCLOUD.

Manage unit → Manage device

Click on “Parameters” according to the REWIND device you would like to adjust.

Consult the parameters table concerning your device.

Warning: the parameters modification via web is not immediate. It is carried out when the device connects to the server to send a data (event, periodic data, keep alive). In order to check when the parameter is received by the device, it is possible to check the web window to the parameters. The modification is received when the value indicated in the column Future Value disappeared. The device sends again all the parameters by updating the list. At this point the new value will appear in the Value column.

To refresh the parameters window from the browser, press F5.

9.2 Mobile Network Configuration.

To use the communication on data network mobile it is necessary to configure some parameters.

If you wish to use the GPRS/LTE functions (communicate with the device through TCP/IP, use of "SMARTCLOUD" system etc.) a SIM with an internet connection active plan is required (as the SIM used in the Smartphones). For the data exchange through TCP/IP protocol, the IP address is assigned to the controller directly from the mobile network and the controller will then be contactable using this IP address. It is also possible to interrogate the controller via SMS* to know the current IP address.

If you are using "SMARTCLOUD." system, the controller periodically sends messages to "SMARTCLOUD" server: the server thus repeatedly memorizes the IP address given to the controller by the mobile data network. If you are using Mecc Alte SS3, it is possible to connect to the plant in any moment by setting the section dedicated to the connection between the "SMARTCLOUD" server.

These parameters can be modified on the controller through SMS*, with the BoardPrg3xx and through the web service in the appropriate configuration page of the device:

Parameter	Description	Default
P.1001	GPRS – Enable and sending data to SMARTCLOUD.	0 - Disable
P.1002	GPRS – APN primary (access Point Name)	lbox.tim.it
P.1003	GPRS – APN primary username (optional)	
P.1004	GPRS – APN primary password (optional)	
P.1005	GPRS – APN secondary (access Point Name)	m2mbis.vodafone.it
P.1006	GPRS – APN secondary username (optional)	
P.1007	GPRS – APN secondary password (optional)	
P.1008	GPRS – Connection mode	1-Stay connected
P.1010	GPRS – Modbus/TCP enable	0-Disable
P.1011	GPRS – Modbus/TCP port	502
P.1014	Mobile network mode	1-GSM/GPRS
P.1015	LTE category	2-CAT M and NB-IoT

- **P.1001** parameter set to value "1-Yes" enables the data issue towards "SMARTCLOUD" server. For Mecc Alte Service set "1".
- **P.1002** parameter configures the APN (Access Point Name) of the mobile operator used. Some operators require access credentials (username e password) to access the APN: in this case use the parameters **P.1003** and **P.1004** to configure username and password. If access credentials are not required (standard), leave **P.1003** and **P.1004** empty.
- **P.1008** parameter configures how the controller has to connect to the data mobile network:
 - **0 ("Disconnect every time")**. In this mode the controller connects to the data mobile network every time it has to send data to "SMARTCLOUD" server and disconnects as soon as it has sent the data. If this mode is used, the data exchange with the Modbus/TCP protocol with the controller is not possible.
 - **1 ("Stay connected")**. This mode is suggested: the controller connects to the data mobile network as soon as possible and remains connected until it is possible. In this mode the data exchange with the Modbus/TCP protocol with the controller is possible (BoardPrg3, Mecc Alte SS3).

It is recommended to set this parameter to "1- Stay connected".

- **P.1010** parameter activate/deactivate the data exchange with the protocol Modbus/TCP on the mobile network: when it is enabled, the parameter **P.1011** configures the TCP port on which the controller is able to communicate. The standard port used for the Modbus/TCP protocol is 502, but it can be modified for specific applications. Leave **P.1010** at "1" and **P.1011** at "502" if you need to use the connection via BoardPrg4 or Mecc Alte SS3.
- **P.1014** parameter configures the preferred Network Mode to:

- **0 (“Automatic”)**: automatic connection between GSM or LTE network. In this mode, the module will do the network searching with following priority for the first time: CAT-M > NB-IOT > GSM/GPRS/EDGE.

Search time depends on signal strength and active mobile networks detect.

- **1 (“GSM/GPRS”)**: connection to the GSM/GPRS/EDGE network only
- **2 (“LTE”)**: connection to the LTE network only (CAT-M or NB-IoT network)

Set this parameter to "1-GSM/GPRS" if you use SIM cards that only support 2G- GSM/GPRS/EDGE connection.

- **P.1015** parameter configures the preferred LTE network mode to:
 - **0 (“CAT-M”)**: connection to the CAT-M network only.
 - **1 (“NB-IoT”)**: connection to the NB-IoT network only.
 - **2 (“CAT-M and NB-IoT”)**: automatic connection between CAT-M or NB-IoT network.

Set this parameter to "2 - CAT-M and NB-IoT".

9.3 “SMARTCLOUD” system

“SMARTCLOUD” system is a centralized system of data collection: such data are then consultable through a WEB interface. The devices can communicate with the “SMARTCLOUD” system via GPRS/LTE modem. These parameters can be modified on the controller through SMS*, with the BoardPrg3xx and through the web service in the appropriate configuration page of the device:

2 – SERVER SMARTCLOUD		
Parameter	Description	Default
P.1020	SMARTCLOUD Server 1 IP address or name	
P.1021	SMARTCLOUD Server 1 port	0
P.1025	SMARTCLOUD Server 2 IP address or name	
P.1026	SMARTCLOUD Server 2 port	0
P.1030	SMARTCLOUD Interval Data Sending time if engine running	900
P.1031	SMARTCLOUD Interval Data Sending time if engine stopped	3600
P.1035	SMARTCLOUD/GPRS - Keep Alive Network - Interval Data Sending	0
P.1040	SMARTCLOUD Data Packet Type	0 - Complete
P.1041	SMARTCLOUD Communication events – Hex Value	15
P.1042	SMARTCLOUD Verbose (0= disabled, 1= enable diagnostic events)	0 - Disable
P.1044	SMARTCLOUD Pretrigger (data buffering before event)	0 - Disable
P.1045	SMARTCLOUD Generator Voltage Selection	0-Phase to phase
P.1050	SMARTCLOUD Battery Minimum Voltage (event)	12,1
P.1051	SMARTCLOUD Battery Delay (0,0 disable)	40,0

- **P.1020** parameter configures the IP address or the name of “SMARTCLOUD” primary server, while parameter **P.1025** the one of the secondary server. It is possible to set the IP address in text format or the server name in full (for Mecc Alte Service set “smartcloud.meccalte.com”) which will be converted by the controller into IP address using the DNS server (suitably configured or automatic on GPRS). It is possible to disable the connection towards the primary/secondary server setting the empty string. For Mecc Alte Service set “smartcloud.meccalte.com”.
- **P.1021** parameter configures “SMARTCLOUD.” primary server port, while **P.1026** parameter that of the secondary server. By setting the port address to zero the connection to the primary/secondary server is disabled. For Mecc Alte Service set “53052”.

- **P.1030** parameter configures the interval of time to send periodic data to the server with engine is running. A high transmission frequency (therefore low times) increases the traffic generated by the SIM. Check your tariff plan.
- **P.1031** parameter configures the interval of time to send periodic data to the server with the engine is off. A high transmission frequency (therefore low times) increases the traffic generated by the SIM. Check your tariff plan
- **P.1035** parameter configures the interval of time in minutes to send the special packet "Keep Alive Network", used to indicate a minimum of activity to the server. Setting 0 disables the "Keep Alive" packet: we recommend leaving the Default value (0).
- **P.1040** Configura il tipo di pacchetto dati inviato a SMARTCLOUD
 - 0 = Full: used when the REWIND is connected to a Genset controller board
 - 1 = Simplified (not used)
 - 2 = Base: if REWIND is NOT used with a controller, but using only the digital inputs of the device
 - 3 = Extended (with tank): used if the REWIND also acquires the level of an external tank from its dedicated input.
 - 4 = Specific for PowerNet

It is recommended to leave the Default value (0 - Full)

- **P.1041** parameter configures in which cases the device has to spontaneously send the communication events to the server. The set value must be expressed in hexadecimal. By "double-clicking" on the value you can directly select which states should generate an event. Confirming with the OK button the software will automatically set the hexadecimal value corresponding to the selected bits according to the following table

Bit	Value HEX	Description
0	1	Allarm and deactivations
1	2	Warning
2	4	Engine started
3	8	Engine stopped
4	10	Mains failure.
5	20	Mains presence.
6	40	Operating Mode

The default value "0F" corresponds to the states highlighted in **boldface**

- **P.1042** if set to the "**1-Enabled**" value, it allows diagnostic messages (e.g.: modem reset) to be sent to the "**SMARTCLOUD**" server. It is recommended to leave the Default value (0-Disabled).
- **P.1044** Activate the pre-trigger and indicate on which conditions to activate it (Allarm, Warning). Rewind continuously interrogates the board connected via serial and keeps the last 5 readings in memory (about 2 seconds apart). When an event activates the Rewind pre-trigger, immediately before sending the event, it sends 5 data packets with the data trend of the last 10 sec. Practically for each pre-trigger event 5 data packets and 1 event are sent.
- **P.1045** parameter allows to choose if to send concatenated (L-L) or phase (L-N) voltage measurements to the server.
- **P.1050** parameter configures the minimum battery voltage value below which an event must be sent. The battery value is acquired by the supply terminal of Rewind (terminal J1). The event of low battery can be acquired also via serial port by the monitored device if properly set at parameter **P.1041**.
- **P.1051** parameter set the time delay expressed in seconds after which an event must be sent.

9.4 Serial port

Connect the device to be monitored to the Rs232 serial port (**Ref.3**) or to the Rs485 serial port (**Ref.13**). RS232 port is allowed only for the devices of the same control panel or for devices that are not subject to external overvoltage and supplied by the same DC supply power of Rewind. Alternatively, use the RS485 port, which is galvanically isolated.

3 – SERIAL PORT		
Parameter	Description	Default
P.1101	Master serial port	1 - Porta COM1 -RS232
P.1111	COM1 serial port (RS232) - Baud rate	9600
P.1112	COM1 serial port (RS232) - Setting	0 - 8 bit, no partity, 1 stop bit
P.1121	COM2 serial port (RS485) - Baud rate	9600
P.1122	COM2 serial port (RS485) - Setting	0 - 8 bit, no partity, 1 stop bit

- **P.1101** allows you to select which serial port is to be used:
 - Set **1** for COM1: Port - Rs232.
 - Set **2** for COM2: Port - Rs485.
- **P.1111** and **P.1112** parameters configures configure baud-rate and setting of the serial port Rs232.
- **P.1121** and **P.1122** parameters configures configure baud-rate and setting of the serial port Rs485.

9.5 Modbus Devices

If Rewind is connected to a device to be monitored, the following parameters must be set:

4 –MODBUS DEVICE		
Parameter	Description	Default
P.1131	Modbus receive Timeout	1,0
P.1132	Modbus pause between task	0,5
P.1161	Board 01 – Modbus address	01
P.1162	Board 01 – Board type	1 – DST4400,DST4601PX...

- **P.1131** and **P.1132** parameters configures Timeout and pause between task.
- **P.1161** parameter configures configure the modbus address to be connected.
- **P.1162** parameter configures the type of board to be connect to Rewind:

Board Type	
Parameter P.1162	Description
0	None
1	Mecc Alte controllers (Automatic identification)
2	DSE 5210
3	DSE 7320
4	DSE 7510
5	DSE 5510
6	not used
7	Multimeter IME Nemo D4
8	COMAP IL NT AMF25
9	COMAP IG NTC BB
10	ELCOS CAM-120
11	CUMMINS PC 2.x (Diesel)
12	POWERNET M200
13	DEIF AGC-3
14	DEIF ACG-3 CAN
15	Woodward easYgen 3200

16	Woodward easYgen 3200 CAN
17	Caterpillar EMCP3
18	Caterpillar EMCP4
19	Cummins MCM3320
20	Lovato RGK800
21	Lovato RGK700/RGK610 - Coelmo Lexys/Giotto
22	Lovato RGK610 - Coelmo Giotto
23	CUMMINS PC 3.x (Gas)
24	CUMMINS PC 1.x
25	CUMMINS PS0500
26	CUMMINS PS0600

9.6 SMS

The **Rewind** device can send alerts directly to a mobile phone via SMS (mobile originated SMS); to do so, the device can need to be programmed to send SMS to a specific phone.

The networks on which cellular narrowband is deployed, support SMS services over GSM network but do not always over **LTE NB-IoT** or **LTE Cat M1**. Several operators have yet not deployed the SMS functionality for Narrowband. Contact your network provider for details.

The Board card must be configured as a "Modbus Slave" device and the telephone numbers and communication events are managed directly by REWIND.

If this function is used, set the following parameters:

6 – SMS		
Parameter	Description	Default
P.1201	GSM – Communication events (for SMS) – Hex value	15
P.1203	GSM – Number of SMS for each event (0=Disabled)	1
P.1205	GSM – Filter on SMS (0= no filters)	1 - Enable
P.1210	GSM – Phone number (1)	
P.1211	GSM – Phone type (1)	0 – Not used
.....	
P.1220	GSM – Phone number (6)	
P.1221	GSM - Phone type (6)	0 – Not used

- **P.1201** configures in which cases the device must spontaneously send communication events via SMS. The set value must be expressed in hexadecimal. By "double-clicking" on the value it is possible to directly select which states must generate an event. Confirming with the OK button the software will automatically set the hexadecimal value corresponding to the selected bits according to the following table

Bit	Value HEX	Description
0	1	Allarm and deactivations
1	2	Warning
2	4	Engine started
3	8	Engine stopped
4	10	Mains failure.
5	20	Mains presence.
6	40	Not used
7	80	Events from Mecc Alte Board

The default value "**0F**" corresponds to the states highlighted in **boldface**

9.7 Connection via Mecc Alte Supervision

 **Note:** REWIND is able to make and receive SMS*, make GPRS/EDGE/LTE traffic but is unable to make and receive voice calls.

It is not possible to use the REWIND3 device as a modem, to make a direct connection between PC and System, because the radio module is not able to make voice calls.

A GPRS data connection must therefore be used for connection with the Mecc Alte Supervisor.

- The Rewind must have activated the modbus/tcp function (P.1010 GPRS-enable Modbus/Tcp = 1-enabled).
- The PC must be connected to Internet.
- The SIM card must have an IP PUBLIC not NAT.

 **INFORMATION:** Some mobile companies use a NAT (“Network Translation Address”) system also for SIM cards, therefore the IP address received by “SMARTCLOUD” server is not usable for the connection with the plant. It is necessary to explicitly ask the network operator not to use the NAT on the SIM.

There are 4 ways to know the IP address of the device:

- Ask your provider for a fixed IP address. Remember that some providers allow (on demand as additional service) to have a fixed IP address.
- IP demand via SMS (READ, IP)
- IP address research on SMARTCLOUD (by opening the window of the device data from the page List of devices)
- Use Mecc Alte Supervisor with SMARTCLOUD connection.

Usually (if no fixed IP address has been required) each connection has a different IP address. The telephone provider may reassign the IP address in other situations too (if there are no transmissions for some minutes, etc.).

 **Important:** During operation, the REWIND device exchanges data at a configurable frequency and can be set for permanent connection.

Mecc Alte will not be held responsible for whatsoever problem or conflict arising from choosing an improper phone rate plan or a wrong device configuration.

The data exchanged and the consequent pricing depend on the operations carried out during the connection and on the price plan set by the provider.

9.8 Use of the REWIND device to send SMS only

The following configuration parameters enable to use the REWIND device as GSM Modem (without using the Software SMARTCLOUD), allowing to send SMS.

- **P.1001** GPRS data send enable: 0 = Disabled
- **P.1201** GSM - Communication of events: 128 (for Mecc Alte boards)

The value 128 allows to send SMS directly to the controller, with no need of interpretation. This function is available in the Mecc Alte controllers produced from 2010 on.

However, it is necessary to set the parameters relatively to the board connected:

- **P.1131** Timeout
- **P.1132** Connected boards serial polling delay
- **P.1161** Modbus Address

- **P.1162** Board Address

RS232 Serial port:

- **P.1101** Master serial Port = 1 COM1 RS232
- **P.1111** RS232 Baud rate
- **P.1112** RS232 Settings

RS485 Serial port:

- **P.1101** Master serial Port = 2 COM1 RS485
- **P.1121** RS485 Baud rate
- **P.1122** RS485 Settings

With this configuration, REWIND is able to receive and reply to SMS, send SMS in case of event and accept GSM connections, useful to use the software Mecc Alte Supervisor with a modem connection.

The controller must be set as “Modbus Slave” device and phone numbers and communication events will be directed by REWIND.

10. Lithium Ion internal battery

In addition to the possible external backup battery that can be connected to the terminals **J1-2** and **J1-4** (Lead battery max. 6A), REWIND is supplied with a Lithium Ion internal rechargeable battery, which is able to ensure its working, data transmission and localization for some hours in case of lack of the main supply.

The recharge happens automatically by supplying the device; the full charge requires approximately 12 hours, after which the battery is in permanent buffer charge.

The device operation time depends on several factors, such as the environment temperature, the use of output relays, the data sending frequency and the local GSM signal intensity.

The duration of the battery can be highly increase by activating one of the types of energy saving: Power Save, Sleep Mode or Deep Stand-by Mode.

The battery is activated/deactivated through the switch **S1** (Ref.10 of fig.1).

If the battery is switched off the charging cycle and monitoring is performed anyway.

The internal battery can be recharged only when the device temperature is between 0°C and +45°C.

11. External tank management

REWIND is equipped with a dedicate 0-5V input set to acquire the data of an analogue external level sensor.

Connect the positive input of the analogue measure to the terminal 5 of J1 and the ground reference to the terminal 6 of J1. The voltage to measure must be referred to the same potential of the supply negative J1-3, GND; it is better to supply the device or the transducer with the same source that supplies Rewind.

Refer to the connection diagram for further clarifications on the electrical connection.

To acquire data from an external tank, you need to use the data package:

- **P.1040 Type of data package** = 3 Extended (with Tank)

Tank data can be checked on SMARTCLOUD, in “Manage tanks” and “Use of tanks” (see SMARTCLOUD manual).

Consult the parameters table for the tank management parameters:

10) TANK	
P.1600 Tank - Capacity in Liters	Set the tank capacity in liters. * Default Setting = 0
P.1601 Percentage value of the sensor with empty tank	Set the value read by the sensor (in percentage) when the tank is empty. * Default Setting = 0
P.1602 Percentage value of the sensor with full tank	Set the value read by the sensor (in percentage) when the tank is full. * Default Setting = 0

<p>P.1063 Reserve in percentage (0.0=no reserve control)</p>	<p>It enables the event of tank in reserve.</p> <p>* Default Setting = 0</p>
<p>P.1604 Minimum level for engine stop</p>	<p>It indicates the tank level below which the stop command of the controller is sent.</p> <p>If P.1605 > 0 (function of automatic stop activated) when the percentage value of the fuel in the tank stays under the minimum level for at least 10 seconds:</p> <ul style="list-style-type: none"> • It sends the activation of Event REW_RW029 MINIMUM FUEL LEVEL (STOP) • It sends the STOP command via modbus to the controller connected (Mecc Alte, DSE, ComAp, Elcos) if selected. • It commands the possible digital output (P.1400=1 commands output1, P.1410=1 commands output 2). <p>When the value comes back over the minimum level +0,5% for at least 10 seconds:</p> <ul style="list-style-type: none"> • It sends the Deactivation of event REW_RW029 MINIMUM FUEL LEVEL <p>* Default Setting = 0</p>
<p>P.1605 Function of automatic stop on minimum level</p>	<p>It determines the activation and the mode of automatic stop on the minimum level of the external fuel tank.</p> <p>0 = function disabled*</p> <p>1 = function enabled, it sends the stop command once (therefore, it is possible to restart the engine manually)</p> <p>2 = function enabled, it sends the stop command continuously if the engine is acknowledged as started (it does not allow the restart of the genset)</p> <p>* Default Setting = 0</p>

12. Energy saving

REWIND is equipped with two different levels of energy saving:

1. Power Save Mode (1° level of energy saving)
2. Sleep Mode (2° level of energy saving)

12.1 Power Save

The **Power Save** mode can be activated by setting the parameter **P.1650 (Minutes from engine off or controller disconnected)** at a value different from 0. The value set in this parameter indicates the number of minutes that REWIND waits before entering this mode of energy saving.

REWIND **enters** the status **Power Save** only after the time indicated in **P.1650** if:

- It does not receive any answer from the serial controller that is connected (**P.1162>0**) for the Timeout set in **P.1131**.
- It is not connected to any controller (**P.1162 =0**) and a digital input configured with the function **1-Engine operating** is deactivated, that is the engine is stopped.

The behaviour in the status of **Power Save** is the following:

- If **P.1670 = 1 (sending of events Power Save and Sleep Mode)**, Rewind sends the event “RW212 - POWER SAVE ACTIVATED”
- The Modem is in power save and it is checked every 3 minutes to verify if there are SMS incoming.
- The serial controller is checked every 5 seconds to verify if the serial communication is reactivated (the controller has been turned on again)
- The signaling leds are all turned off except for the PWR ON LED and the LED4, which double flashes every 5 seconds.

REWIND **exits** the **Power Save** status in case it acknowledges again the controller connection as active (in case **P.1162>0**) or the engine started from digital inputs (in case **P.1162>0**).

12.2 Sleep Mode

The **Sleep Mode** mode can be activated by setting the parameter **P.1661 (Delay for minimum battery voltage)** at a value different from 0. The value set in this parameter indicates the number of seconds that REWIND waits before entering this mode of energy saving.

REWIND enters the **Sleep Mode** status when the device supply voltage (supplied by the terminals J1-1 or J1-2) stays under the value set in the parameter **P.1660 (Battery voltage minimum threshold)** for the time **P.1661**.

The behaviour in the status of **Sleep Mode** is the following:

- If **P.1670 = 1 (sending of events Power Save and Sleep Mode)**, Rewind sends the event “RW212 - SLEEP MODE ACTIVATED”
- The Modem is off
- The GPS is off

- The signaling leds are all turned off except for the PWR ON LED and the LED4, which double flashes every 10 seconds.
- The serial controller is no longer questioned
- The recharge circuit of the internal Lithium Ion battery is turned off
- The primary Microprocessor enters in the low consumption status (Wait mode) awaking every second to read:
 - Battery voltage
 - AUX Button
 - Digital inputs
- According to the time set in the parameter **P.1662 (GPS module awaking frequency)**, the GPS is turned on again to check possible movements. The GPS module stays on until the position is acquired or the maximum time of 8 minutes does not expire.

REWIND **exits** the **Sleep Mode** status when:

- The supply voltage goes back over the minimum level set (**P.1660**) + 300mV, after 3-4 sec.
- A GPS movement is acknowledged
- The AUX button is pressed for at least 300 msec.
- The digital input of engine started is acknowledged.
- The wake-up input to the terminal **J2-5** is activated.
- A movement from the internal movement sensor is acknowledged (Accelerometer + Gyroscope):

In order to enable the awaking from accelerometer or gyroscope, it is necessary to set the following parameters:

11) ENERGY SAVING	
P.1663 Accelerometer/gyroscope sensibility	Set a sensibility value between 0 and 63. A high value indicates a low sensibility on the axes X,Y,Z. Each time the value acknowledged exceeds the threshold set an Accelerometer/Gyroscope event is created. * Default Setting = 10
P.1664 Number of event from Accelerometer/ gyroscope for awaking	Set the number of events that have to be created from the accelerometer/gyroscope and that determine the exit from Sleep Mode . The value 0 disables the awaking. * Default Setting = 2

13. Auxiliary data management

There are some parameters (from P.1801 to P.1827) that allow to control any Modbus RTU device connected to the REWIND serial ports (RS232/RS485). It's also possible to control other devices (counters, thermometers, multifunctional instruments, etc...) or acquire data from the connected controller.

It is possible to use the auxiliary data also in combination to other controllers, or without other controllers connected.

In this case, among the data sent to SMARTCLOUD, the auxiliary ones only will be counted.

The auxiliary data are 3 and have to be number values (no text or bit value). They are transmitted to the server together with the data packet (any type of packet data is accepted). Set the descriptions in the "Aux" fields of the Unit, in order to visualize data on SMARTCLOUD

T	Tipo	Nome	Modello	Proprietario	Usato da	Manager	Disp.Associato	Mailing List	Invio Email	In Deposito	S/N			
+	Genset	SCe_RW3_RED1	RW3_RED	Sices Ele	Sices Ele	Bottini Roberto	000025A7784C-KGFS00001-REWIND 3		Yes	No	KGSP00001			

Nome:*	SCe_RW3_RED1	Tipo:*	Genset
Tipo Unità:*	Template 06	S/N:*	KGSP00001
Modello:*	RW3_RED	Proprietario:*	Sices Ele
Usato da:*	Sices Ele	Manager:*	Bottini Roberto
Moltiplicatore Potenza:*	1	Valore:*	
Descrizione:*	REWIND3 TEST	In Deposito:*	No
Luogo Noleggio:*		Fix Posizione:*	
Contratto:*		Disp.Associato:*	000025A7784C-KGFS00001-REWIND 3
Deposito:*	Jerago, via Molinello 8	Invio Email:*	Yes
TimeZone:*	Europe/Rome	Filt Email:*	
Mailing List:*		Serbatolo:*	
Potenza Nom. (kW):*		Aux1 Testo:*	Contatore Fiscale kWh
Aux2 Testo:*	Consumo Totale It	Aux3 Testo:*	
Aux1 Flag:*	1	Aux2 Flag:*	1
Aux3 Flag:*			

In the following example, a Frer C70 counter has been set in order to read the quantity of imported and exported energy.

The button "Extra" will be introduced on the unit data in the Software SMARTCLOUD Press "Extra" and "Set/Clear". The enabled auxiliary data will appear on the right columns:

For the configuration of the auxiliary data, see parameters from 1801 to 1827 on the parameters table.

14. SMS

Rewind can use SMS in two functions: spontaneous messages or response on requests (commands). Both functionalities require that the SIM has a phone number and can manage the SMS.

14.1 Automatic SMS

These are the messages that are generated automatically by the Rewind device and can be activated by parameter. Automatic SMS messages are sent to predefined numbers configured by parameters.

14.2 SMS commands

Rewind is able to receive and interpret SMS messages. In this case you will have an immediate response and you will be able to execute an immediate command. The messages received by REWIND can be interpreted directly or redirected to the connected board.

It is recommended to activate the SMS filter to prevent the Rewind from responding to service messages from telephone operators (P.1205 Filter on SMS reception = 1-Enabled).

14.3 SMS Interpretation

Below is the logic of interpretation of SMS messages by REWIND.

The important factors are:

- **Recognition:** the message is acknowledged if it is included in the list of commands known to the Rewind.
- **Destination.** The message can be addressed to the Rewind itself (as in the case: READ SIGNAL, READ IP, RESET DEVICE), or to the connected board (e.g.: READ STATUS, CMD RESET ALARMS). In the second case, if the connected board supports the forwarding, the message is forwarded to the board, otherwise Rewind will try to reply with the data detected by the board (e.g.: READ STATUS).
- **Forwarding.** This function is available for Mecc Alte boards that support the SMS forwarding mode via modbus (all boards currently in production support it; for older boards the model and version must be checked). Message forwarding indicates that the message received from the Rewind is written in the modbus registers of the board connected by serial port. The board responds to the message by serial to the Rewind, which sends the reply of the board through SMS.
- **Addressing.** If there is only one board connected to the Rewind the message will be addressed to it. If more than one board is connected, it is possible to redirect the message by prefixing "**Gxx**" or "**Mxx**" or "**GRxx**". The addressing works only if message forwarding (via modbus) to Mecc Alte boards is available. This suffix is used to address the message to one of the connected boards. "**xx**" indicates the modbus address of the board (must be between 1 and 254).

Example : "**G2 READ STATUS**"

Forward the READ STATUS message to the board with modbus address 2.

Note: The READ STATUS command, one of the most widely used, will be forwarded to the card if it's a Mecc Alte card that supports forwarding. In the case of non Mecc Alte boards, or old generation Mecc Alte boards that do not support forwarding, it will be the Rewind that composes the reply message using the data acquired via modbus from the boards.

When Rewind receives the compressed message it first checks if SMS is a valid message.

a) **If the SMS is not valid (not recognised):**

- If the board supports SMS **Forwarding**, it is redirected via modbus to the board. If it is not a Mecc Alte board, it will reply "**command unknown**".
- If the board does not support **Forwarding**, Rewind will respond with "**Command unknown**".

b) **If the SMS is valid (it's recognised):**

- If the message is destined for the Rewind it responds directly
- If the message is destined for the board:
 - If it's a Mecc Alte board:
 - If it supports **Forwarding**, it redirects the message to the board and redirects the reply.
 - If it doesn't support forwarding:
 - for requests (e.g. READ STATUS) for which an SMS reply with data is expected, the reply will be composed by Rewind with the data available and that have been acquired from the board.
 - for commands (e.g. CMD REMOTE START) the SMS is converted into a modbus command where possible.
 - If it's a board from another manufacturer:
 If managed compose the answer with the available data. For commands, if supported, it converts them into a modbus command sent to the board.

14.4 SMS to Rewind

SMS commands list managed directly by Rewind (it answers directly, so independently by the controller connected via serial port):

Text	Command
READ NETWORK	It reads the GSM signal level
READ SIGNAL	It reads the GSM signal level
READ CONFIG	Requires information on the Rewind device (software revision, etc.).
READ PARAMETER 1031	It reads a parameter value (in this case P.1031 Time for data sending with engine stop in sec.)
WRITE PARAMETER 1031 3600	It changes a parameter (in this case P.1031=3600, that is sending data every hour with engine stop)
READ MODEM &V2	Sends an AT command to the modem and returns the answer (in this case it sends the AT&V2 command to the modem and returns the modem configuration)
READ INPUT	It reads the status of the Rewind digital inputs
READ OUTPUT	It reads the status of the Rewind outputs
READ GPS	It reads the data received by GPS module (position, height, n. satellites, UTC time)
WRITE OUTPUT 2 ON	It commands a Rewind output (in this case it activates output 2)
WRITE ALL OUTPUT 11	It commands the Rewind outputs (in this case it activates both outputs)
CMD DISABLE SMS	It disables the spontaneous SMS sending (on event)
CMD ENABLE SMS	It enables the spontaneous SMS sending (on event)
CMD DISABLE GPRS	It disables the sending of GPRS packages (it no longer sends data to SMARTCLOUD)
CMD ENABLE GPRS	It enables the sending of GPRS packages (it transmits data to the server SMARTCLOUD)
READ IP	Reading of the GPRS connection status and current IP address

SEND DATA	It forces the data transmission via GPRS to the server SMARTCLOUD. Rewind sends the event of "Data Required"
RESET DEVICE	It carries out the start of Rewind. Rewind resets and resends the event of first start
SIM	<p>It allows the configuration of the main parameters for the connection to SMARTCLOUD using a SMS.</p> <p>SIM ENAB,APN,APUSER,APNPWD,SERVER,PORT,TCPENAB,PACKET</p> <p>Example: SIM 1,ibox.tim.it,,, smartcloud.meccalte.com,53052,1,0</p> <p>ENAB=1 Enable the data sending to the server SMARTCLOUD (1=Transmit to SMARTCLOUD, 0=Do not transmit to SMARTCLOUD).</p> <p>APN=ibox.tim.it APN primary APUSER= none user APN (Optional) APNPWD= none password APN (Optional) SERVER= smartcloud.meccalte.com name or server IP address PORT=53052 server tcp port TCPENAB=1 modbus/tcp enabled (the port is the one set 502) PACKET=0 type of data package sent (0=complete)</p> <p>Other parameters can be modified from the webpage or with the command SMS WRITE PARAMETER</p> <p>SYNTAX RULES: the separator can be comma (,) or semi-colon (;). Without leaving spaces (ex: ,,,) it indicates that the parameter is not set (the previous value remains). Leaving one or more spaces instead (ex: , , ,) the parameter is cancelled (blank). The parameters (except for the first) can be omitted; for example, if you would like to set only the APN you can write: SIM 1,ibox.tim.it</p> <p>In order to disable the transmission to SMARTCLOUD, you will only need to write: SIM 0</p>
MODEM STATUS	<p>It indicates : device ID, modem connection status, signal and the last occurred error.</p> <p>Example with error : ID:00001B970914 Tx OK:8 Er:35 LAST ERR:2-APN NOT CONNECTED, MOB.MODE: 1-GSM, APN: NO CONN., SG: 20</p> <p>Example without error: ID:00001B970914 Tx OK:58 Er:0 NO ERRORS, MOB.MODE: 1-GSM, APN: OK, m2mbis.vodafone.it, SRV: smartcloud.meccalte.com:53056, SG: 15.</p>

14.5 SMS interpreted by Rewind with board data

This set of commands is interpreted by Rewind, which constructs the reply using data from the boards (Mecc Alte and non-Mecc Alte boards).

Text	Command
READ GEN	Reading data genset - analogue 1
READ ANALOG1	Reading data genset - analogue 1
READ MAINS	Reading data mains / engine - analogue 2
READ ANALOG2	Reading data mains / engine - analogue 2
READ POWER	Reading powers - analogue 3
READ ANALOG3	Reading powers - analogue 3
READ AW	Reading list of active alarms and warnings
READ WARNINGS	Reading list of current warnings

14.6 SMS forwarded to Mecc Alte boards

Only for Mecc Alte boards that support the function of forwarding SMS messages via modbus. In this case each board accepts different commands depending on its category and version.

SMS	Board connected														
	DST2600, DST2700	DST4400, AC3000	DST4601, DST4601/PX	GC310, GC350, GC500, GC500Plus	MC100	MC400	MC200	DST4602	ATS100	ATS115	HS315	GC315Plus, GC315Link, GC600	BTB100	BTB200	RN200
READ STATUS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
READ WARNINGS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
READ ANALOG1	X	X	X	X				X			X	X	X	X	
READ ANALOG2	X	X	X	X				X	X	X	X	X	X	X	
READ ANALOG3	X	X	X	X				X			X	X	X	X	
READ SOURCEA									X	X					
READ SOURCEB									X	X					
READ LOAD									X	X					
READ PLANT					X	X	X								X
READ MAINS					X	X	X								
READ GENERATORS					X	X	X								
READ RENEWABLES															X
READ EXTRA TEMP						X	X	X			X	X			X
READ EXTRA ANALOG						X	X	X			X	X			X
CMD LOCK	X	X	X	X		X	X	X				X			
CMD UNLOCK	X	X	X	X		X	X	X				X			
CMD RESET ALARMS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CMD STOP	X	X	X	X	X	X	X	X			X	X			X
CMD TEST START	X	X	X	X	X	X	X	X			X	X			
CMD TEST STOP	X	X	X	X	X	X	X	X			X	X			
CMD REMOTE START	X	X	X	X	X	X	X	X			X	X			X
CMD REMOTE STOP	X	X	X	X	X	X	X	X			X	X			X
CMD FORCE A									X	X					
CMD FORCE B									X	X					
CMD FORCE N									X	X					
CMD FORCE X									X	X					
CMD OPEN													X	X	
CMD CLOSE A													X	X	
CMD CLOSE B													X	X	
CMD CLOSE X													X	X	
NEW ALARM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NEW WARNING	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NEW MAINS STATUS	X	X	X	X	X	X	X	X				X			
NEW AUXILIARY SOURCE STATUS											X				
NEW ENGINE STATUS	X	X	X	X				X			X	X			
NEW SOURCEA STATUS									X	X					
NEW SOURCEB STATUS									X	X					
NEW SWITCH STATUS									X	X					
NEW BUSA STATUS													X	X	
NEW BUSB STATUS													X	X	

14.8 Commands SMS valid for DSE controllers

Valid SMS commands for DSE 5210, 7320, 7510, 5510 cards:

Text	Command
CMD RESET ALARMS	Reset alarms
CMD LOCK	It blocks the controller
CMD UNLOCK	It unblocks the controller
CMD STOP	Engine stop command
CMD TEST STOP	Engine stop command
CMD REMOTE STOP	Engine stop command
CMD TEST START	Engine start command
CMD REMOTE START	Remote start command
CMD TEST START	Engine start command
MODE STOP	It changes the controller mode in STOP
MODE MAN	It changes the controller mode in MAN
MODE AUTO	It changes the controller mode in AUTO
MODE TEST	It changes the controller mode in TEST
TRANSFER TO GEN	It carries out a transfer function on the genset
TRANSFER TO MAINS	It carries out a transfer function on the mains

14.9 Commands SMS valid for COMAP controllers

Valid command SMS for COMAP IntelliLite NT, IntelliGen NTC BaseBox boards:

Text	Command
CMD RESET ALARMS	Reset alarms
CMD STOP	Engine stop command
CMD TEST START	Engine start command in test
CMD TEST STOP	Engine stop command in test
CMD REMOTE START	Remote start command
CMD REMOTE STOP	Remote stop command

14.10 Commands SMS valid for ELCOS controllers

Commands SMS valid for ELCOS CAM-120 controllers:

Text	Command
CMD STOP	Engine stop command
CMD TEST START	Engine start command in test

CMD TEST STOP	Engine stop command in test
CMD REMOTE START	Remote start command
CMD REMOTE STOP	Remote stop command

14.11 Commands SMS valid for DEIF controllers

Commands SMS valid for DEIF AGC3 controllers:

Text	Command
CMD RESET ALARMS	Reset alarms
CMD STOP	Engine stop command
CMD REMOTE START	Remote start command
CMD REMOTE STOP	Remote stop command
MODE MAN	It changes the controller mode in MAN
MODE AUTO	It changes the controller mode in AUTO
MODE TEST	It changes the controller mode in TEST
MODE SEMI	It changes the controller mode in SEMI-AUTO

14.12 Commands SMS valid for WOODWARD controllers

Commands SMS valid for Woodward EasyGen3200 controllers:

Text	Command
CMD RESET ALARMS	Reset alarms
CMD STOP	Engine stop command
CMD REMOTE START	Remote start command
CMD REMOTE STOP	Remote stop command
CMD TEST START	Engine start command in test
CMD TEST STOP	Engine stop command in test

14.13 Commands SMS valid for CATERPILLAR controllers

Commands SMS valid for Caterpillar EMCP3, EMCP4 controllers:

Text	Command
CMD RESET ALARMS	Reset alarms
CMD STOP	Engine stop command
CMD REMOTE START	Remote start command
CMD REMOTE STOP	Remote stop command
CMD TEST START	Engine start command in test
CMD TEST STOP	Engine stop command in test
MODE STOP	It changes the controller mode in MAN
MODE AUTO	It changes the controller mode in AUTO

MODE RUN	It changes the controller mode in RUN
-----------------	---------------------------------------

15. Troubleshooting

We propose below some indications for solving the most frequent problems

15.1 REWIND doesn't send data to SMARTCLOUD Why?

Checks and probable causes

1. Is the device powered? (LED POWER)
2. Is the Rewind enabled for internet data connection and sending packets to SMARTCLOUD? (P.1001-GPRS – Enable Connection and Data package sending to SMARTCLOUD = 1-Enabled)
3. Has the SIM Card been inserted correctly? If the SIM Card isn't read, LED 2 (MOBILE DATA) will flash intermittently (2 rapid flashes repeated every 1 sec.)
4. Has the SIM PIN been disabled?

in order to use the SIM card in Rewind, the PIN code must be removed. It can be removed by inserting the SIM in the mobile phone and selecting the deactivation option of the PIN code or asking the operator.
5. Has the SIM been enabled to the GPRS traffic data (M2M or Internet contract)?
6. Is the Modem registered to the Network? (Led MODEM must flash rapidly first and after 10 seconds it starts flashing less. This indicates that it is connected to the mains)
7. Ensure that the GPS antenna hasn't been inverted with the GSM one. In this case, the modem doesn't work!
8. Is the antenna correctly connected, enabled and placed?
9. Is the area sufficiently covered by a GSM signal?
10. Does the APN set correspond to the one of the provider (ibox.tim.it for TIM, m2mbis.vodafone.it for Vodafone, etc.)?
11. Does the APN need USER and PASSWORD? Some telephone providers (mostly the foreign ones) require the configuration of username and password.
12. Have the parameters been set correctly? (Server Address and Port. In case of Mecc Alte SMARTCLOUD: Primary Server = smartcloud.meccalte.com, Port=53052)
13. Is Windows working? The Windows service may be suspended for maintenance.
14. If the server is not Mecc Alte: has Firewall the open window on the server? Has the Unit been created on SMARTCLOUD?
15. Has the Unit been associated to a device?

16. Does the Unit belong to a company?

17. If the unit exists without being associated to a company (UsedBy), the database table is not created. If the unit exists but it has not been connected to a company (field "Used by") the database table is not created. Therefore, the data can't be recorded.

15.2 SMARTCLOUD receives the data but they are all at zero and I don't see the genset data. Why?

Checks and probable causes

Check the LED1 status (UNIT DATA) that indicates if it activates/deactivates the serial communication with the controller that manages the genset:

If Led1 on Rewind is off, there is no communication. Check the following points:

1. Is the controller connected to Rewind supplied and still working?
2. Check the connection parameters: baud rate, n. bit settings, parity and stop bit (all devices connected to the same serial port must have the same communication parameters).
3. Does the controller connected to Rewind have the serial port configured as SLAVE MASTER RTU?
4. Is it connected via RS485?
 - a. Check that the 2 connection wires are not inverted. In case of doubts, you can try and move them. Usually they are marked by the letters A and B.
 - b. Did you select the RS485 port on Rewind as Master? (Par.1101 Master serial Port = 2-Port COM2-RS485)
 - c. Have you checked that the communication parameters for the RS485 port (P.1121 and P.1122) are equal to the ones of the device to interrogate?
 - d. Are there other devices on the RS485 network? Try to disconnect them and leave only the controller connected to the Rewind.
 - e. Is the modbus address of the controller to interrogate correct?
5. Is it connected via RS232?
 - a. Did you select the RS232 port on Rewind as Master? (Par.1101 Master serial Port = 1-Port COM1-RS232)
 - a. Have you checked that the communication parameters for the RS485 port (P.1111 and P.1112) are equal to the ones of the device to interrogate?

If the Led1 on Rewind is on, the communication with the controller connected via serial port is active but the data received are wrong. Check the following points:

1. Is the type of controller configured correctly? Check the par. 1162 controller type.
2. Is the modbus address of the controller to interrogate correct? It could read another device on the RS485 network.
3. Is the controller connected supported by Rewind?
4. Is the device connected a modbus slave RTU?

RED Declaration of Conformity

Hereby, **Mecc Alte** declares that the radio equipment type **REWIND 3** is in compliance with **Directive 2014/53/UE**.

The full text of the EU declaration of conformity is available upon request.



MECC ALTE SPA (HQ)

Via Roma
20 – 36051 Creazzo
Vicenza – ITALY

T: +39 0444 396111
F: +39 0444 396166
E: info@meccalte.it
aftersales@meccalte.it

MECC ALTE PORTABLE

Via A. Volta
1 37038 Soave
Verona – ITALY

T: +39 0456 173411
F: +39 0456 101880
E: info@meccalte.it
aftersales@meccalte.it

MECC ALTE POWER PRODUCTS

Via Melaro
2 – 36075 Montecchio
Maggiore (VI) – ITALY

T: +39 0444 1831295
F: +39 0444 1831306
E: info@meccalte.it
aftersales@meccalte.it

ZANARDI ALTERNATORI

Via Dei Laghi
48/B – 36077 Altavilla
Vicenza – ITALY

T: +39 0444 370799
F: +39 0444 370330
E: info@zanardialternatori.it

UNITED KINGDOM

Mecc Alte U.K. LTD
6 Lands' End Way
Oakham
Rutland LE15 6RF

T: +44 (0) 1572 771160
F: +44 (0) 1572 771161
E: info@meccalte.co.uk
aftersales@meccalte.co.uk

SPAIN

Mecc Alte España S.A.
C/ Rio Taibilla, 2
Polig. Ind. Los Valeros
03178 Benijofar (Alicante)

T: +34 (0) 96 6702152
F: +34 (0) 96 6700103
E: info@meccalte.es
aftersales@meccalte.es

CHINA

Mecc Alte Alternator
(Nantong) Ltd
755 Nanhai East Rd
Jiangsu Nantong HEDZ 226100
People's Republic of China

T: +86 (0) 513 82325758
F: +86 (0) 513 82325768
E: info@meccalte.cn
aftersales@meccalte.cn

INDIA

Mecc Alte India PVT LTD
Plot NO: 1, Talegaon
Dhamdhare S.O.
Taluka: Shirur,
District: Pune - 412208
Maharashtra, India

T: +91 2137 673200
F: +91 2137 673299
E: info@meccalte.in
aftersales@meccalte.in

U.S.A. AND CANADA

Mecc Alte Inc.
1229 Adams Drive
McHenry, IL, 60051

T: +1 815 344 0530
F: +1 815 344 0535
E: info@meccalte.us
aftersales@meccalte.us

GERMANY

Mecc Alte Generatoren GmbH
Bucher Hang 2
D-87448 Waltenhofen

T: +49 (0) 831 540755 0
E: info@meccalte.de
aftersales@meccalte.de

AUSTRALIA

Mecc Alte Alternators PTY LTD
10 Duncan Road, PO Box 1046
Dry Creek, 5094, South
Australia

T: +61 (0) 8 8349 8422
F: +61 (0) 8 8349 8455
E: info@meccalte.com.au
aftersales@meccalte.com.au

FRANCE

Mecc Alte International S.A.
Z.E. la Gagnerie
16330 St. Amant de Boixe

T: +33 (0) 545 397562
F: +33 (0) 545 398820
E: info@meccalte.fr
aftersales@meccalte.fr

FAR EAST

Mecc Alte (F.E.) PTE LTD
10V Enterprise Road, Enterprise 10
Singapore 627679

T: +65 62 657122
F: +65 62 653991
E: info@meccalte.com.sg
aftersales@meccalte.com.sg



www.meccalte.com

The world's largest independent
producer of alternators 1 – 5,000kVA



Filename: EAAM069702EN.docx
Rev. 01 | Date: 20/07/2022
ID Document: EAAM0697
Product: REWIND 3