bintec elmeg

Regesta PRO PLC

Installation Manual

Legal Notice

Warranty

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Table of Contents

I Related documents

Teldat Dm748-I *Software Updating*.

Teldat Dm781-I *Cellular Interface.*

Chapter 1 About this manual

This is the installation manual for the Regesta PRO PLC router and contains information on how to correctly install this device in a working environment.

1.1 Supported devices

The information provided in this installation manual only applies to the **Regesta PRO PLC** router, models 2G / 3G.

1.2 Who should read this manual?

This manual should be read by support personnel who need to install, configure, maintain and monitor the device.

1.3 When should this manual be read?

Read this guide as soon as you are ready to familiarize yourself with the device and its components.

This manual will give you a greater understanding of your new device.

1.4 What is in this manual?

This installation guide contains the following information:

- A description of the features that are available in the Regesta PRO PLC.
- Technical specifications.
- Power supply requirements.
- Connector and LED descriptions.
- Troubleshooting.

1.5 What is not in this manual?

This document does not contain information about the device software or its configuration. For information on how to configure this device, please see the relevant protocol manuals which can be found at the Teldat website:

http://www.teldat.com

1.6 How is the information organized?

Each chapter focuses on a specific part of the hardware and its components. Technical descriptions and information about the components can be found in the relevant chapter.

1.7 Technical support

Teldat S.A. offers a technical support service. Firmware can be upgraded on a regular basis for maintenance purposes or to add new features.

Contact information:

Web: http://www.teldat.com

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Chapter 2 Regesta PRO PLC router

2.1 Features

The Regesta PRO PLC router family is a range of IP routers specially designed for use in hostile and extreme environments. The ruggedized mechanics and special characteristics of these routers, allowing them to resist extreme temperatures, makes them particularly suited for harsh industrial environments such as oil and gas, power and energy and water, industrial telecontrol, etc.

The most important characteristic of these routers is that they can allow communication between a virtual concentrator integrated in a management system (i.e., system software that includes a DLMS client) and the smart meters registered on a PLC PRIME network controlled by the Regesta PRO PLC. In this scenario, the Regesta PRO PLC works as a Base Node. The main communication method is a TCP transport layer for DLMS, with extensions for optimal multiplexing of IEC 61334-4-32 connections (also known as Ticket 67) over a Wireless WAN (WWAN) data network on private or public networks or a LAN connection.The number of smart meters controlled depends on the license.

The Regesta PRO PLC can also be configured to act as a Service Node. In this case, the Regesta PRO PLC allows PRIME communications to be transferred over an Ethernet interface using the specifications defined in the PRIME Auxiliary nodes connection proposal for multi-transformer substations (also known as Ticket 65).

The module design of these routers means they can quickly adapt to the latest WWAN technologies. The Regesta PRO PLC family supports a wide variety of wireless technologies, including GPRS, EDGE, UMTS, HSDPA, HSUPA, HSPA+, LTE, CDMA 2000 1xRTT and CDMA Ev-Do. A basic license provides connection through GPRS/EDGE technology and additional licenses allow technologies with wider bandwidths to be supported. These devices also come with dual SIM card slots for holding two SIM cards: one active SIM and the other used as backup.

As for LAN networks, these devices incorporate a 10/100 BaseT LAN Ethernet port with a 10KV isolation option.

The RS-232 console port on these devices can be configured as a DCE asynchronous serial communications port with a maximum speed of 38400 bps and without control signals. The devices can incorporate two additional asynchronous serial ports with a maximum speed of 115200 with DCE RS-232 technology or with 2-4 wire RS-485/RS-422. The serial port connectors are DB9.

The devices have a clear safety cover fitted to prevent connectors from being touched while the device is running.

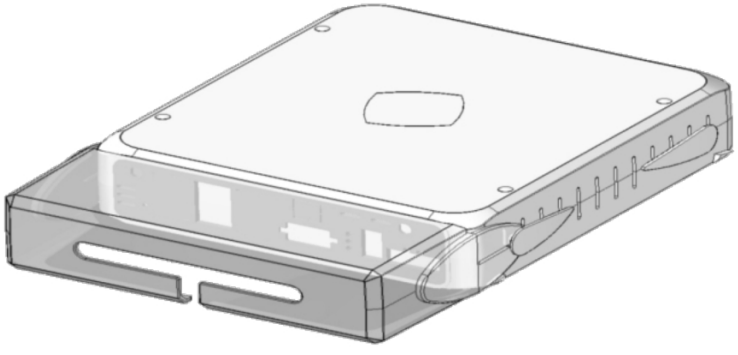


Fig. 1: Regesta PRO PLC

2.1.1 Power supply

For further information on the Regesta PRO PLC power supply, please see *Power source* on page 12.

2.1.2 Hardware monitoring

You can monitor the Regesta PRO PLC hardware through the LEDs on the front panel. The LEDs provide visual information about the hardware components, indicating whether there is connectivity, data flow, etc.

For further information on the LED panel, please see *LEDs* on page 7.

Chapter 3 Components and power supply

This chapter describes the Regesta PRO PLC chassis and its main components. The following sections are included:

- Components.
- Assembly instructions.
- Power supply.
- RST button.
- Data connection.
- SIM card installation.

3.1 Components

3.1.1 Front panel

The following image shows the device's front panel:

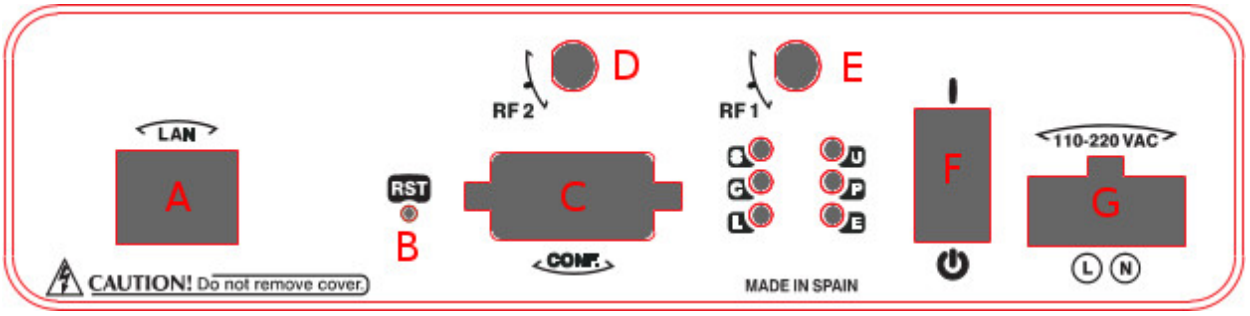


Fig. 2: **Front panel**

The front panel components are as follows:
Front panel components

Item	Description
A	Fast Ethernet Port.
B	RST. Reset button. For more information on how the reset button works, please see *RST button* on page 13.
C	CONF. DB9 connector providing access to the device's local console for configuration and monitoring purposes. (This connector can also be used as an RS-232 asynchronous DCE serial port).
D	RF2. WWAN antenna connector.
E	RF1. WWAN antenna connector.
F	I/O. ON/OFF power switch, position I for ON and position O to switch it OFF.
G	POWER. Power connection. For further information on the power connection, please see *Power source* on page 12.

In addition to the connectors, the front panel also contains a set of LEDs that indicate router status.

3.1.1.1 LEDs

The LEDs are located on the front panel of the router as shown in the following image:

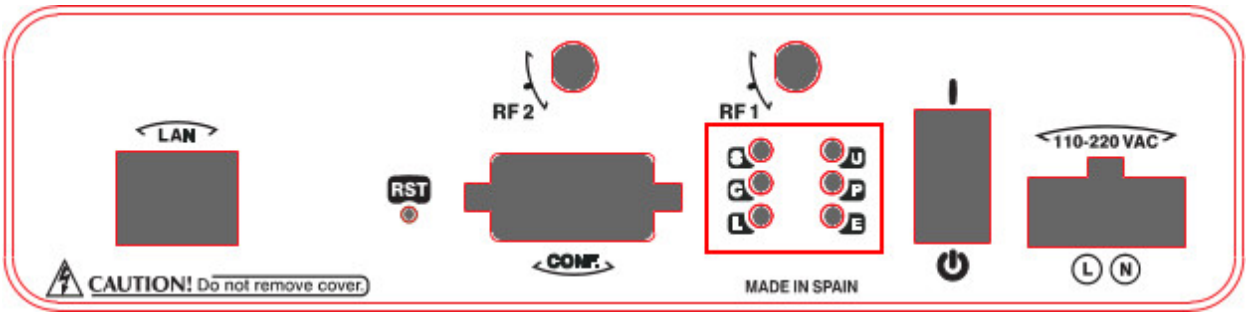


Fig. 3: **Front panel LEDs**

LED “L” lights up in green while the device is in startup mode. Once the device has started up, the LEDs indicate the following:

LEDs

LED	Associated Interface	Status	Description
S	Cellular interface	Green	SK1 operating SIM. This processes traffic through the carrier for the SIM installed in this tray.
		Amber	SK2 operating SIM. This processes traffic through the carrier for the SIM installed in this tray.
C	Cellular interface	Red	Cellular interface is unavailable, not installed or not registered.
		Amber	The device has registered in the network and is in the process of establishing a PPP protocol connection.
		Green	The device is registered, the PPP connection has been established, and IP traffic can be sent through the PPP interface. • Steady: Data is not being transferred. • Blinking: Data is being transferred.
L	Cellular interface	Green	Coverage level above -90dBm.
		Yellow	Coverage level between -90dBm and -100dBm.
		Red	Coverage level below -100dBm.
		Off	Cellular interface is not active.
U	Multi standard serial interface	Green	Communications established.
		Yellow	Establishing the link.
		Red	Port has been initialized.
		Off	Port has not been initialized.
P	PLC interface	Red	PRIME PLC interface is not available, not installed or not registered.
		Yellow	PRIME PLC is running but no SNs are currently detected.
		Green	PRIME PLC is running and maintaining a connection to one or more SNs. PRIME traffic can be sent through the PLC interface.

			• Steady: Data is not being transferred. • Blinking: Data is being transferred.
E	Ethernet (LAN) interface	Green	ON -> Ethernet connection (link) established: • Steady: Data is not being transferred. • Blinking: Data is being transferred. OFF -> Ethernet connection is not established.

3.1.2 Rear panel

The following image shows the rear panel of the Regesta PRO PLC router where you can see the other connectors.

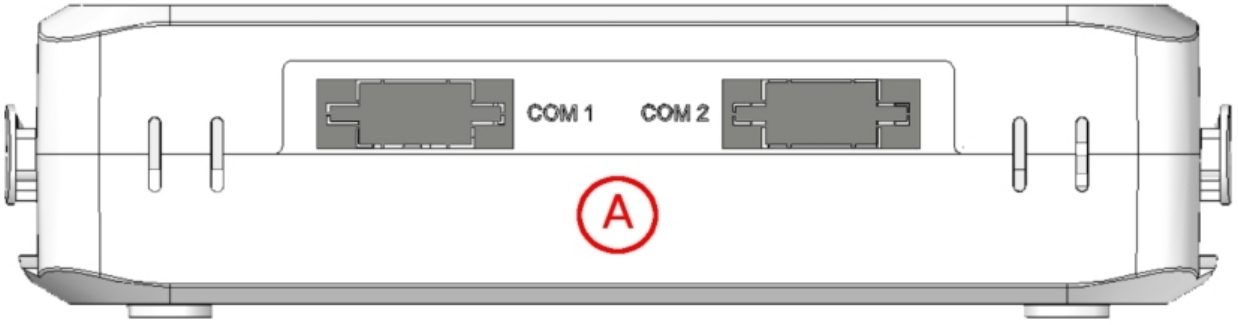


Fig. 4: **Rear panel**

The following table describes each connector:
Rear panel components

Item	Description
A	COM1, COM2. DCE RS-232 serial ports or 2-4 wire RS-485/RS-422.

3.1.3 Underside panel

The following components can be found on the underside panel:

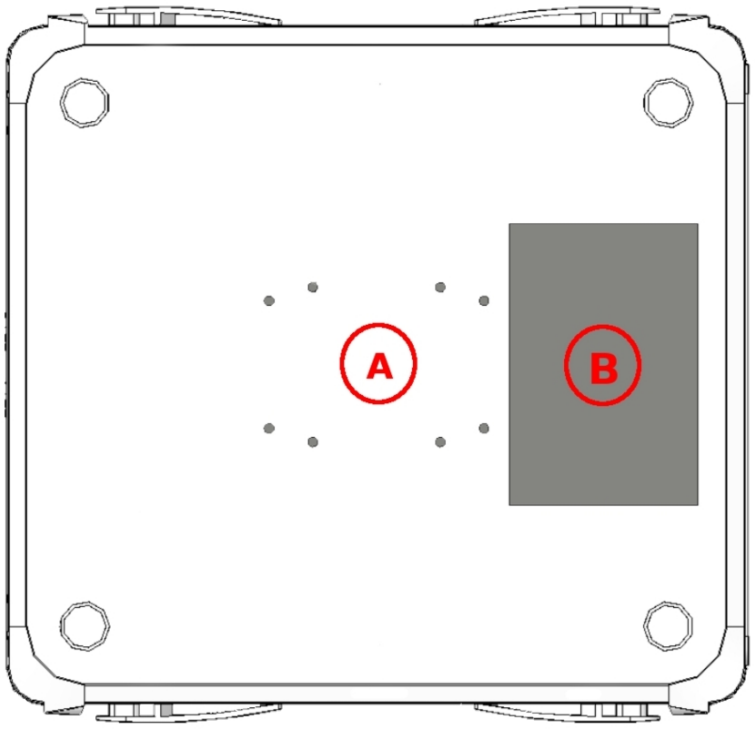


Fig. 5: **Underside panel**

The following components can be found on the underside panel:

Underside panel components

Item	Description
A	Inserts for attaching a DIN rail mounting bracket. For further information about this accessory, please see *Attaching the DIN rail mounting bracket* on page 10.
B	Panel containing the product information label. This label contains information on the device model, MAC, serial number, etc.

3.1.4 Upper panel

The following image shows the the upper panel:

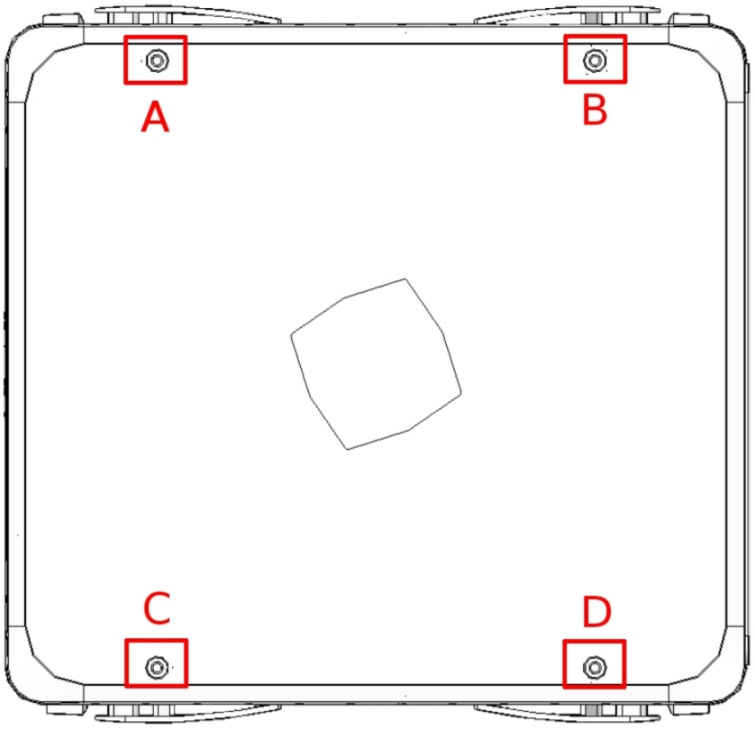


Fig. 6: **Upper panel**

The upper casing components are as follows.

Upper casing components

Items	Description
A, B, C, D	Screws that allow you to disassemble the router's upper casing.

3.2 Assembly

3.2.1 Attaching the DIN rail mounting bracket

The Regesta PRO PLC comes with a special kit for mounting the device on a DIN rail.

The kit contains a DIN rail mounting bracket that you attach via the threaded inserts on the underside of the device. The bracket can be secured in one of two positions using the two supplied screws:

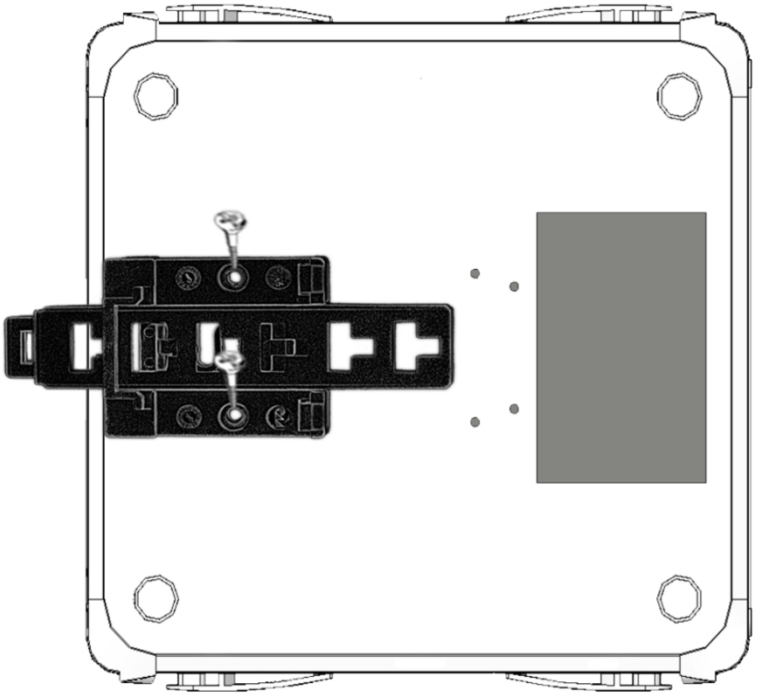


Fig. 7: **DIN rail mounting bracket: Position 1**

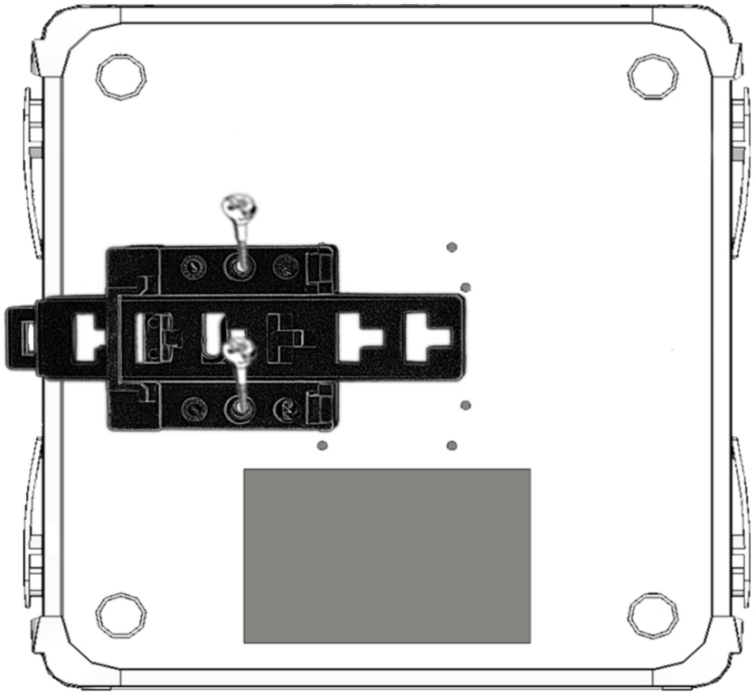


Fig. 8: **DIN rail mounting bracket: Position 2**

3.2.2 Attaching the safety cover

The Regesta PRO PLC has a clear safety cover to prevent the connectors from being touched while the device is running. The safety cover is not attached to the device when you take it out of the package so you will need to attach it.

The following image shows you how to attach the safety cover.

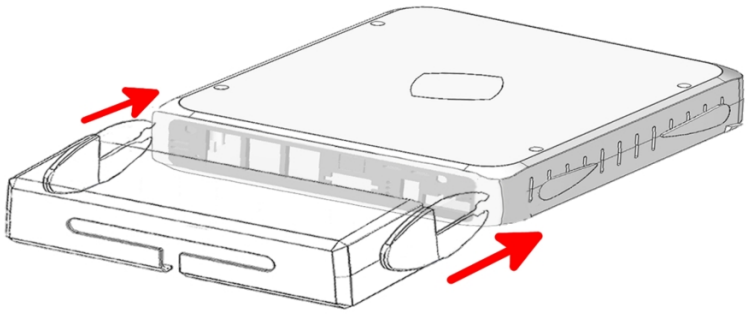


Fig. 9: **Attaching the safety cover**

3.3 Power source

The Regesta PRO PLC router is powered by an external AC source. The nominal power voltages are 100-240 V AC.

Note

Please read the following instructions carefully before connecting the router!

3.3.1 Workplace conditions. Main characteristics

- Do not place the device among papers, magazines or other elements that could hinder natural air circulation.
- Avoid knocks and/or strong vibrations during operation, transport and storage.

Warning

The electric current in power cables, telephone lines and communication cables is dangerous. To prevent electric shock, be sure to connect and disconnect the cables according to the instructions set forth in *Connecting* on page 13 and*Disconnecting* on page 13 before installing, moving or opening the casing.

3.3.2 Connecting the power supply

To connect the power supply to the device, please follow the steps outlined in *Connecting* on page 13.

Warning

To prevent electric shock, residual current circulation and any other unwanted effects that may also disrupt communications, the following is recommended:

All interconnected communication devices should be plugged into THE SAME GROUNDED POWER OUTLET, which should at the same time be of good quality (lower than 10 ohms).

We recommend connecting all data devices to the same power source regardless of whether the workplace has an uninterrupted power supply system (UPS), a regulated supply or is independent of other power supplies (such as lighting, etc.). This will help to prevent malfunctions and premature aging of the drivers and other components.

3.3.3 Connecting

- Make sure that the router's power supply switch is in the OFF position (0).
- Ensure that the power supply is NOT connected to either the electricity supply or the router.
- Connect all data cables.
- Connect the power supply cable to the device.
- Connect the power supply cable to the electricity supply.
- Place the router's power supply switch in the ON position (1).
- Lower the safety cover.

3.3.4 Disconnecting

- Raise the safety cover.
- Make sure that the router's power supply switch is in the OFF position (0).
- Disconnect the power supply from the electricity supply.
- Disconnect the power supply from the router.
- Disconnect the data cables.

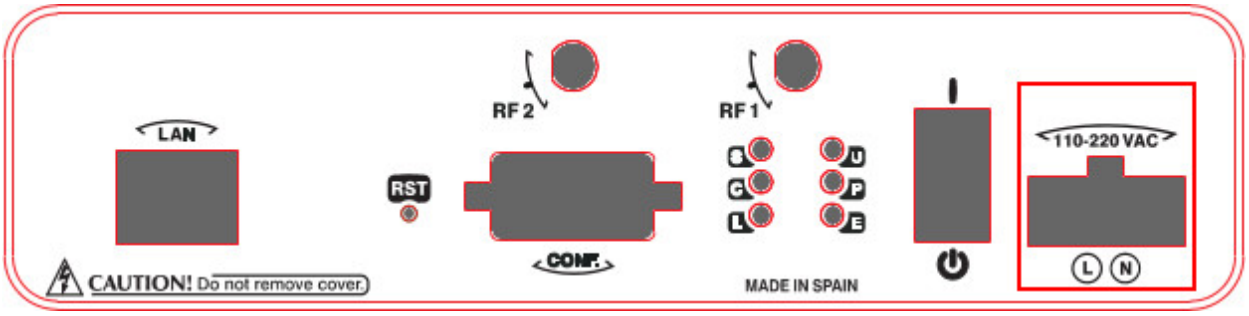


Fig. 10: **Power supply connector**

The connector has 2 terminals for powering.

To connect the power to the device, please follow the steps indicated in *Connecting* on page 13: check that the power switch is in the OFF position (0) and that the power source is NOT connected to the electricity network; find the Power Supply connector (located on the front panel) and insert the power cable connector.

3.4 RST button

There is a button labeled "RST" on the front panel of the Regesta PRO PLC router. This button has two functions.

- To trigger a restart.
- To restore the device to factory default settings. All switch ports are assigned with the factory default IP address 192.168.1.1.

The external button is physically protected to prevent it from being accidentally pushed. You will need to use a thin pointed object to activate it.

3.4.1 Restarting the device

Follow the steps below to restart the device:

(1) Press the RST button. Three LEDs (S, C and L) on the front panel light up in amber to indicate that the device is in reset mode.

(2) Stop pressing the RST button as soon as the three LEDs on the front panel are lit up.

(3) The device will restart with the S and C LEDs unlit and the L LED in green.

3.4.2 Restoring the factory default settings

Complete the following steps to reset the device with its factory default settings:

(1) Press the RST button. Three LEDs (S, C and L) on the front panel light up in amber to indicate that the device is in reset mode.

(2) Keep pressing the RST button. The S LED flashes green while you are pressing the RST button. This state implies that the factory default settings have been restored.

(3) Stop pressing the RST button so that the device can restart.

(4) The device will restart with the S and C LEDs unlit and the L LED in green.

(5) Now that the device has been reset with the factory default settings, you can access it through the IP (the device's default address is 192.168.1.1 and is accessible from any switch port).

3.5 Connecting the data

The Regesta PRO PLC router has the following data connections.

3.5.1 Ethernet port

The Regesta PRO PLC router incorporates a 10/100 BaseT Ethernet port with automatic MDI/MDIX to connect to a local area network (LAN). The LED labeled "E" indicates physical connection.

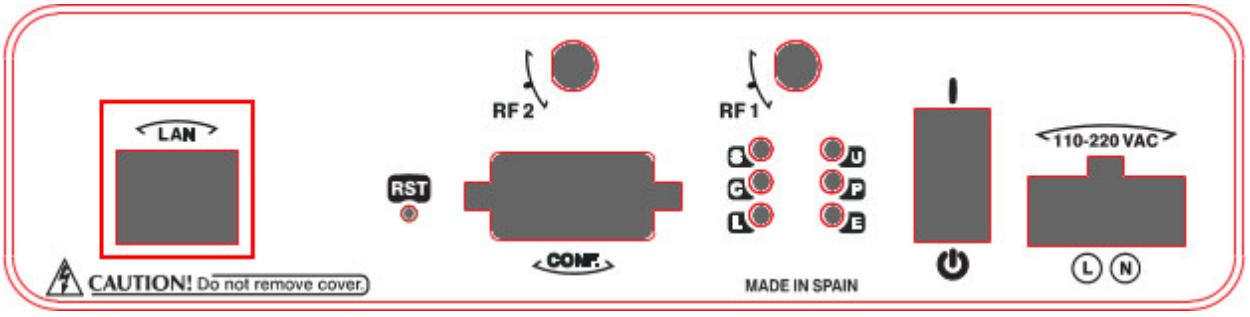


Fig. 11: **LAN port**

3.5.2 WWAN antenna connection (RF connectors)

The Regesta PRO PLC router has two RF antenna connectors. The antennas are assembled and disassembled by screwing/unscrewing them into the connectors labeled RF1/RF2 on the front panel of the device.

The RF1 connector is connected to the module's MAIN connector and the RF2 connector to the AUX connector.

Using these antennas with the Regesta PRO PLC router improves the quality of the signal received and transmitted by the WWAN module (GPRS, UMTS, HSDPA, HSUPA, etc.).

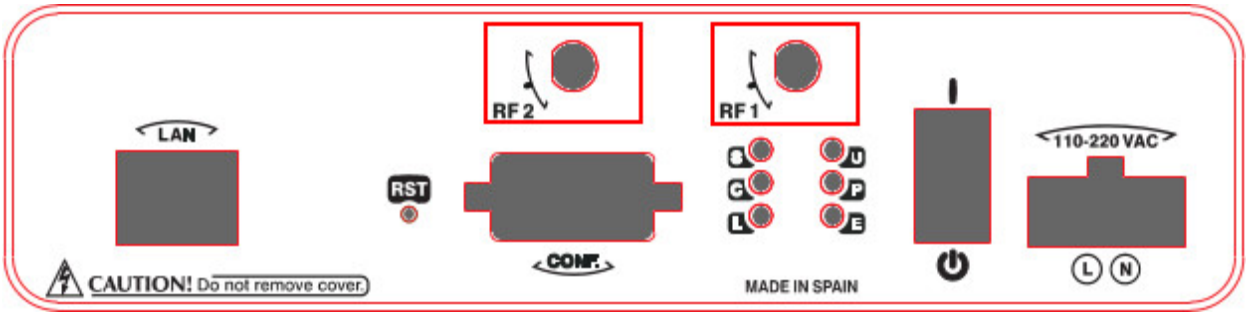


Fig. 12: **WWAN antenna connectors**

Note

The WWAN antennas should be connected to the router at all times in order to deliver high-quality performance. All devices in this range have working WWAN interfaces with access to 2G networks (GPRS/EDGE). Additional licenses must be installed in the device for access to 3G networks (UMTS/HSDPA/HSUPA) or HSPA+).

If the RF1 and RF2 antennas are connected via extension cables rather than being screwed directly into the router, they should be separated from each other by a minimum of 7 cm. The maximum recommended distance between the two antennas is 25 cm.

To achieve optimum performance, install all radio frequency accessories (antennas and cables) as per our recommendations.

We offer a range of accessories (90 degree antenna mounts, exterior antenna mounts, ceiling mounts, extension cables, etc.) that allow you to install the devices in different locations.

3.5.2.1 Positioning the antenna

Device performance can be significantly influenced by antenna orientation and location with respect to other wirelessdevices and radiation sources (such as communication devices, personal computers, etc.).

Antennas transmit and receive radio signals. Performance is also affected by environmental factors (such as the distance between the device and the base station), physical obstacles and radio-frequency (RF) interference.

In order to receive better coverage, follow the instructions given below:

- Whenever possible, place the antenna away from physical obstacles. Obstacles between the antenna and the base station degrade the wireless signal. Place the antenna above ground level and direct it towards the nearest base station.
- Antennas are affected by the density of materials so place them away from walls, metal screens, mirrors, etc.
- Do not place the antenna near columns; these might throw shadows and reduce the coverage area.
- Keep the antenna away from metal pipes such as those used for plumbing, air-conditioning etc.
- Bear in mind that other wireless devices such as telephones, microwaves, etc., can temporarily interfere with thequality of the wireless signal.
- Installing the antennas in racks alongside communication devices, computers, etc., is not recommended. Use an extension cable and place the antenna outside.

The following recommendations are applicable to all wireless devices:

- Do not touch or move the antenna while the device is transmitting or receiving.
- When the antenna is transmitting, do not touch equipment containing devices that radiate very close to, or touching, any exposed part of the body (particularly face and eyes).
- Do not install the device in areas where the atmosphere is potentially explosive.
- Wireless devices can cause interferences in other devices. Do not use the device in areas where medical equipment is installed.
- In order to comply with the R&TTE 1999/5/EC directive, the device must be at least 15 cm away from a person'sbody when operating.

3.5.3 Connecting the serial ports

Depending on the model, the Regesta PRO PLC can have one or several female DB9 connectors.

3.5.3.1 Console connector as serial port (CONF connector)

The console port can be converted into an RS-232 asynchronous DCE serial port with the following characteristics:

(1) DCE port.

(2) RS-232 norm.

(3) Maximum speed of 38400 bps.

(4) Only the following signals are available: RxD (pin 2), TxD (pin 3) and GND (5).

(5) DB-9 connector.

3.5.3.2 Asynchronous serial ports

Some models are equipped with two additional serial ports. These serial ports can be RS-232 or RS-485/RS-422 and have the following characteristics:

3.5.3.2.1 RS-232

(1) DCE port.

(2) Maximum speed of 115200 bps.

(3) All control signals are available.

(4) DB-9 connector.

3.5.3.2.2 RS-485/RS-422

(1) 2/4 wires configurable through software.

(2) Bus termination configurable through software.

(3) Maximum speed of 115200 bps.

(4) DB-9 connector.

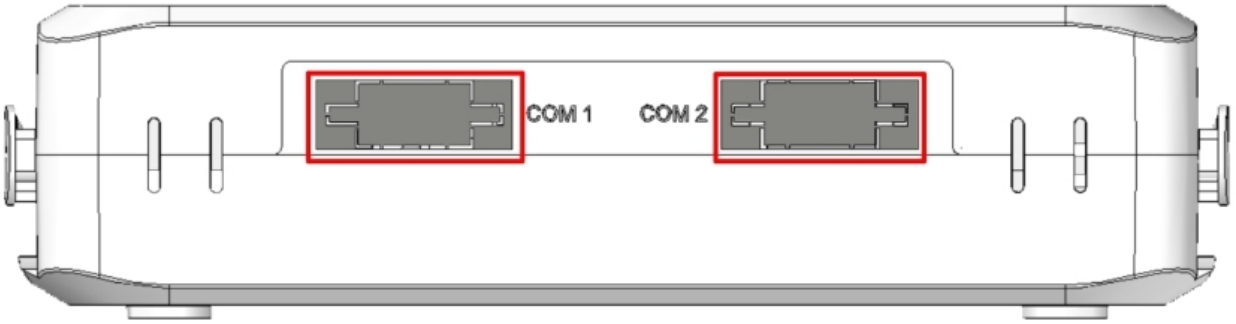


Fig. 13: **Asynchronous serial connectors**

3.6 SIM card installation

You may need to insert at least one SIM card in the Regesta PRO PLC before you can use the WWAN interface. Some countries have services (CDMA) that do not require SIM cards.

The Regesta PRO PLC has two SIM trays located inside the device casing labeled SK1 and SK2.

Where installations require only one SIM card, the card should be installed in the main SK1 tray.

Warning

Never install the SIM cards when the device is switched on.

Always disconnect the device from the main power supply before installing the SIM cards.

Always disconnect the device before removing the casing to access the trays.

Please protect yourself against electrostatic discharge (ESD) when inserting the SIM cards.

Do not touch the SIM card connectors.

You will need to open the upper casing of the device in order to access the SIM tray. To do this, undo the fourscrews on the top panel of the Regesta PRO PLC:

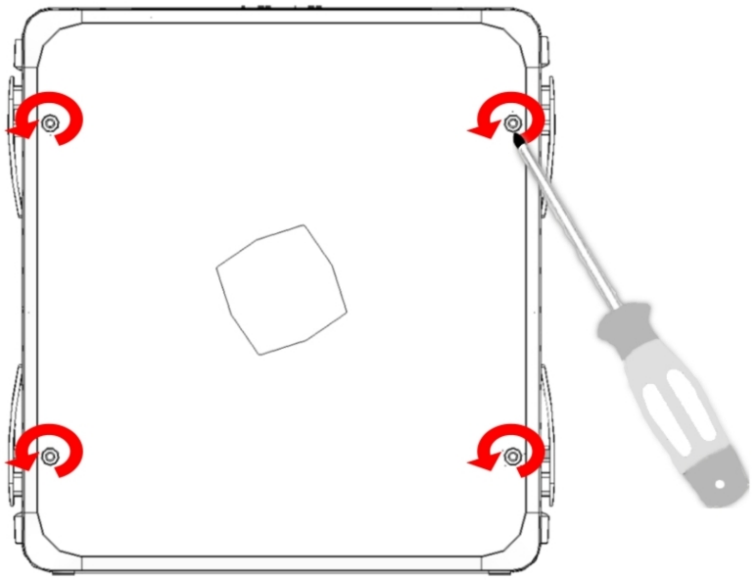


Fig. 14: **Screws on the upper casing**

3.6.1 Identifying the SIM trays

Once you have removed the upper casing, you will be able to see the different elements illustrated below.

The Regesta PRO PLC incorporates two SIM cards, thus allowing for some special configurations. For example, by installing two SIM cards you can use one as backup. With this type of configuration you would need to assign a tray to each SIM (since they require different configuration parameters).

The SIM trays are labeled SK1 and SK2 (socket 1 and socket 2).

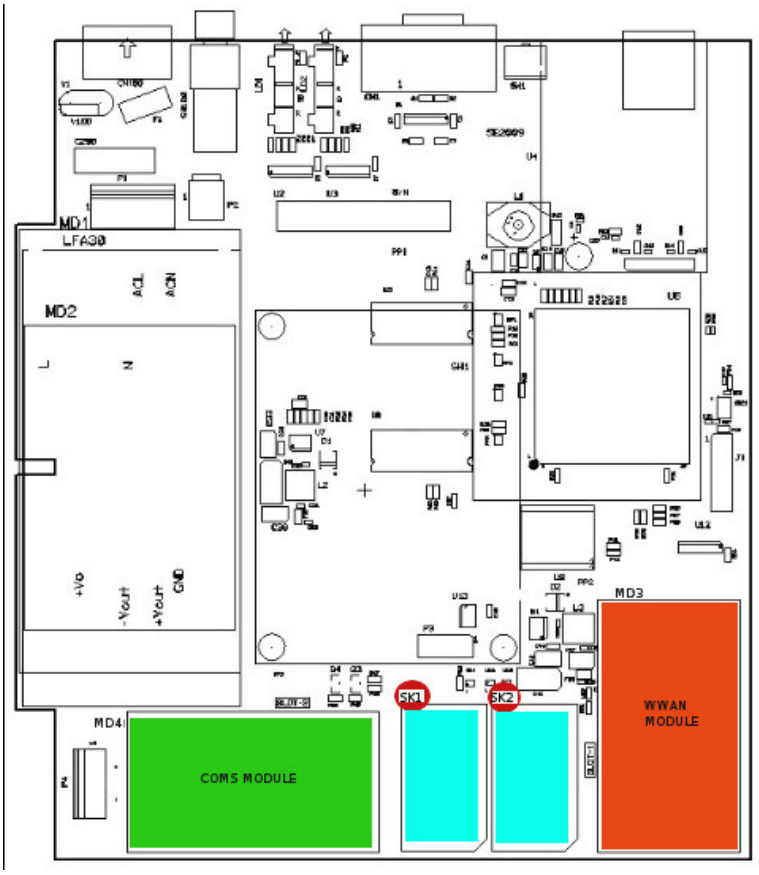


Fig. 15: **Location of the SK1 and SK2 SIM trays**

3.6.2 How to install the SIM card

In order to insert a SIM card in a tray, locate the SIM card case and follow the instructions given below:

(1) Slide the SIM card case cover to the side to open it, as indicated by the arrow labeled *OPEN*.

(2) Open the cover.

(3) Fully insert the SIM card using the guides located on the inner part of the case cover. Make sure that you have oriented the SIM card correctly.

(4) Close the case cover.

(5) Hold the SIM card case cover down while you slide the cover to the side, as indicated by the arrow labeled *LOCK*, until it is firmly in place.

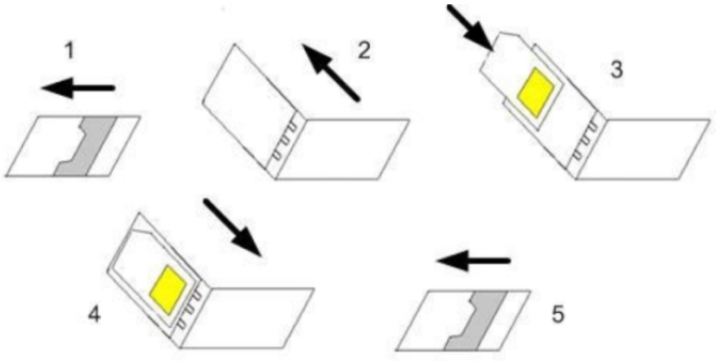


Fig. 16: **Inserting the SIM in the internal tray**

Chapter 4 Compliance

4.1 Manufacturer information

Brand	Teldat
Manufacturer	Teldat S.A.
Country	Spain
Postal Address	Isacc Newton, 10 Parque Tecnológico de Madrid, 28760 Tres Cantos, Madid, Spain
International Phone	+34 91 807 65 65

4.2 Safety warnings

	The electric current in power cables, telephone lines and communication cables is dangerous. To prevent electric shocks, before installing, handling or opening the equipment covers, connect and disconnect the cables following the steps set forth in *Connecting* on page 13 and on page .
	Электрический ток в кабелях и проводах может быть опасен для жизни и здоровья. Чтобы предотвратить поражение током, перед установкой оборудования, его обслуживанием и снятием панелей необходимо отсоединять кабели в соответствии с правилами, изложенными в соответствующем разделе.
	Le courant électrique qui circule dans les câbles d'alimentation, les lignes téléphoniques et les câbles de communication est dangereux. Afin d'éviter tout choc électrique, brancher, puis débrancher les câble en suivant les consignes préconisées dans chaque section avant d'installer, de manipuler ou d'ouvrir les caches de l'équipement.
	La tensión eléctrica de los cables de alimentación, de los cables de la línea telefónica y de los cables de comunicación es peligrosa. Para evitar descargas, antes de instalar, mover o abrir las cubiertas de este equipo, conecte y desconecte los cables siguiendo el orden que se detalla en los apartados *Connecting* on page 13 y on page .
	Never install the SIM cards when the device is switched on. Always disconnect the device from the main power supply before installing the SIM cards. Always disconnect the device before removing the housing to access the trays. When inserting the SIM cards, please protect yourself against electrostatic discharge (ESD). Do not touch the SIM card connectors.
	Никогда не устанавливайте SIM-карты, когда устройство включено. Перед установкой SIM-карт отключите устройство от источника питания. Всегда отключайте устройство перед тем, как снять корпус и извлечь лотки. При установке SIM-карты, пожалуйста, защитите себя от электростатических разрядов (ESD). Не прикасайтесь к контактам SIM-карты.
	N'installez jamais la carte SIM lorsque l'appareil est allumé. Débranchez toujours l'appareil de l'alimentation électrique principale avant d'insérer les cartes SIM. Débranchez toujours l'appareil avant de retirer le boîtier pour accéder aux baies. Lors de l'insertion de la carte SIM, protégez-vous contre les décharges électrostatiques (ESD). Ne touchez pas les connecteurs des cartes SIM.
	No instale nunca las tarjetas SIM con el equipo encendido. Desconecte siempre el equipo de la red antes de instalar las tarjetas SIM. Desconecte siempre el equipo antes de desmontar la carcasa para acceder a las bandejas.

	Al insertar las tarjetas SIM, protéjase contra descargas electroestáticas (ESD). No toque los conectores de las tarjetas SIM.
	The equipment is intended to be installed by Service Personnel and only handled by qualified personnel. If not, the device may be damaged and malfunction.
	Оборудование должно эксплуатироваться квалифицированным персоналом; в противном случае устройство может быть повреждено и впоследствии работать неисправно.
	L'équipement est destiné à être installé par le Personnel de Service et seulement manipulé par du personnel qualifié. Sinon, l'appareil risque d'être endommagé et dysfonctionner.
	El equipo está diseñado para ser instalado por personal del servicio técnico y su manejo debe realizarlo personal cualificado. De lo contrario, el equipo puede resultar dañado y quedar inservible.
	The Regesta PRO PLC is a permanently connected Class II device. According to safety regulations, the device must be installed in a rack already equipped with a thermomagnetic circuit breaker of 10 A max.
	Regesta PRO PLC является постоянно подключенное устройство класса II. Стандарт безопасности устанавливает, что 10 A max термомагнитная выключатель должен быть добавлен в стойке, где он будет установлен.
	Le Regesta PRO PLCest un équipement de classe II branché en permanence. La réglementation de sécurité stipule qu'il doit être installé dans une armoire munie d'un disjoncteur magnétothermique de 10 A max.
	Regesta PRO PLC es un equipo de Clase II permanentemente conectado. La normativa de seguridad establece que debe añadirse en el bastidor donde vaya instalado un dispositivo de desconexión tipo magnetotérmico de 10 A máx.

4.3 WEEE Information

	The crossed-out wheelie bin symbol indicates that the device must be disposed of separately from normal domestic waste in an appropriate waste disposal facility at the end of its useful service life. Das auf dem Gerät befindliche Symbol mit dem durchgekreuzten Müllcontainer bedeutet, dass das Gerät am Ende der Nutzungsdauer bei den hierfür vorgesehenen Entsorgungsstellen getrennt vom normalen Hausmüll zu entsorgen ist. El símbolo del contenedor con la cruz, que se encuentra en el aparato, significa que cuando el equipo haya llegado al final de su vida útil, deberá ser llevado a los centros de recogida previstos, y que su tratamiento debe estar separado del de los residuos urbanos.

4.4 REACH

In compliance with the REACH Candidate List, the delivered product and product packaging do not contain chemicalsubstances above a concentration limit of 0.1% weight by weight (w/w). This declaration will be updated whenever any changes occur or other chemical substances are added to the REACH Candidate List. Information is currentlyprovided to consumers upon request.

4.5 EC declaration of conformity

English (EN)	This equipment is in compliance with the essential requirements and other relevant provisions of: Directive 1999/5/EC (RTTE) or Directive 2004/108/EC (EMC) Directive 2006/95/EC (LVD) Directive 2009/125/EC (ErP) Directive 2011/65/EU (RoHS) of the European Parliament
Spanish (ES) Español	Este dispositivo cumple con los requisitos básicos y con las normas correspondientes de las siguientesdirectivas: Directiva 1999/5/CE o Directiva 2004/108/CE Directiva 2006/95/CE Directiva 2009/125/CE Directiva 2011/65/CE
German (DE) Deutsch	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie Richtlinie 1999/5/EG (RTTE) oder Richtlinie 2004/108/EG (EMC) Richtlinie 2006/95/EG (LVD) Richtlinie 2009/125/EG (ErP) Richtlinie 2011/65/EU (RoHS) des Europäischen Parlaments

The EC declaration of conformity and additional product documentation can be accessed here:

http://www.teldat.com

4.6 CE marking

This equipment is in conformity with CE procedures and marking requirements.

4.7 National restrictions

In accordance with Article 6 (3) of 1999/5/EC, we inform you that national restrictions and requirements may apply when it comes to authorization. These may change over time. Teldat S.A. recommends that you check with local authorities for the latest status on national regulations.

This product is supplied without antennas. Choosing antennas is at the discretion of the operator, but said party is responsible for complying with local regulations. For compliance with power limits and in order to meet RF exposure requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

4.8 Operating frequency

For information on the device's operating frequencies, see Appendix *Radio information* on page 30

Appendix A Technical information

A.1 Troubleshooting

The following table lists common problems and potential solutions to help you when installing your router. Please contact your dealer for additional information if you are unable to solve a problem.

Symptom	Solution
None of the LEDs light up on the router.	Check the power supply to the router (power source, ON/OFF switch, main power outlet).
The local console does not respond.	Check that you have the correct console cable and that it is connected to the device and the asynchronous terminal. Check that the terminal has been configured with the correct port. Check that the terminal configuration is 9600 8N1. Check that the console is not processing events.
The local console only displays rubbish.	Check that the terminal has been configured with the correct port. Check that the terminal configuration is 9600 8N1.
You have forgotten the access password for the router.	Use the RST button to ignore the configuration (as explained in the relevant section).
Date and time are lost when thedevice is reset.	Parameters configured through the **time set** command will be lost when the device is reset. Use the NTP protocol to keep the date and time configuration.
The LAN LED (E) does not light up in green.	Check the Ethernet cable and the connection to the network (you may need a crossover cable).
The S LED is red.	Check that the SIM card has been inserted correctly, or Check that you have entered the correct SIM PIN, or Check that the antenna is properly installed (make sure that it is screwed in correctly), or Get your technical service to verify that the device is in the optimum position for the service.

A.2 Updating the software

The Regesta PRO PLC router can be updated with new releases. Please contact your dealer for further details on new releases.

There are a number of ways in which you can update one of our routers: Please see the manual "*Dm 748-I Software Updating*" for further information.

The software required for updating one of our routers is supplied in a format know as **distribution**. This consists of a single file containing all the files needed for updating your device as well as in-depth information on the contents of

the files.

The Regesta PRO PLC incorporates independent modules for the WWAN interface. Depending on the technology used, you will be able to pick modules from different manufacturers or choose several modules from the same provider. Firmware is generally independent from the device's software. There is an UPGRADE file for each WWAN module. Please ask your dealer for the correct UPGRADE file (according to the module in your device). Refer to the manual "*Dm 781-I Cellular Interface"* for information on how to upgrade the module.

A.2.1 Connecting to the router

You can access the device's CLI in two ways:

- Through the CONF. connector.
- Through the Telnet protocol.

A.2.1.1 Connecting through the local console (CONF connector)

The front panel of the Regesta PRO PLC has a DB-9 female connector known as **CONF.** that provides access to the device's local console. You need to connect the CONF. port to an asynchronous terminal (or to a PC with terminal emulation) in order to configure the connector.

- Speed: 9600 bps.
- Eight data bits.
- One stop bit.
- No parity bit.
- No type of flow control.

You can connect to the configuration port by joining a DB9 male connector cable to a DB9 female. You will need an additional adapter if the terminal has DB25 connectors.

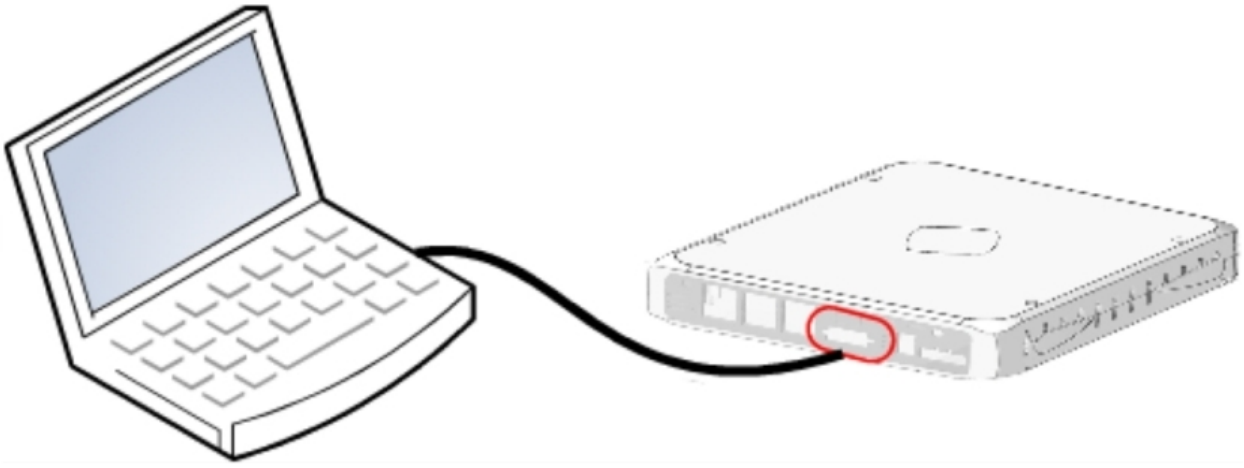


Fig. 18: **Connecting for configuration**

A.2.1.2 Connecting through an IP terminal (LAN connector)

The Regesta PRO PLC router includes a default configuration that activates if you haven't yet configured anything.

The router's default configuration sets up the device with the following IP address and access mask:

- IP address: 192.168.1.1
- IP mask: 255.255.255.0

Note

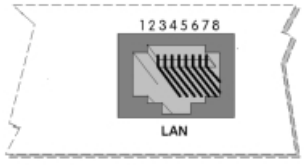
Some devices come with customized settings. This can mean that the default configuration is different from the one shown above.

This initial configuration allows you to access the device's configuration console through the Telnet IP protocol. To do this, follow the instructions below:

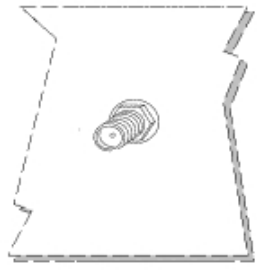
- Assign the IP terminal (normally a PC) Ethernet interface with an IP address in the [192.168.1.2, 192.168.1.254] range and with a mask of 255.255.255.0. For example, 192.168.1.2, 255.255.255.0.
- Connect the IP terminal Ethernet interface to the Regesta PRO PLC LAN connector through the Ethernet cable (RJ45) provided.
- Initiate a Telnet session from the IP terminal to IP address 192.168.1.1 (Regesta PRO PLC default address).
- The default configuration does not ask for credentials (user/password) to access the console.

A.3 Connectors

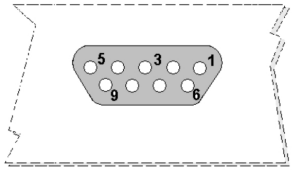
A.3.1 LAN connector

RJ45 LAN	RJ45 PIN	LAN
	**1**	Tx+ (input)
	2	Tx- (input)
	3	Rx+ (output)
	4	--
	5	--
	6	Rx- (output)
	7	--
	8	--

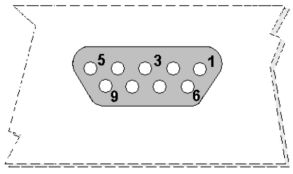
A.3.2 WWAN/Cell connector (female)

RF	PIN	ANT
	**Internal**	RF in/out
	External	GND

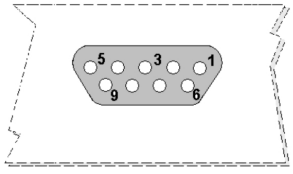
A.3.3 Configuration connector

DB9	PIN	CONF
	**1**	--
	2	RxD
	3	TxD
	4	--
	5	GND
	6	--
	7	--
	8	--

A.3.4 RS-232 serial port connectors

DB9	PIN	SERIAL
	**1**	CD
	2	RxD
	3	TxD
	4	DTR
	5	GND
	6	DSR
	7	RTS
	8	CTS

A.3.5 RS-485 serial port connectors

DB9	PIN	SERIAL
	**1**	--
	2	4H_RX+
	3	2H_R/TX+_4H_TX+
	4	--
	5	GND
	6	4H_RX-
	7	--
	8	--
	9	2H_R/TX-_4H_TX-

A.4 Technical specifications

A.4.1 PRIME PLC interface

PROTOCOL	PRIME 1.3.6 (Upgradeable PRIME 1.4).
ROLE	Configurable Base Node and Service Node.
COMMUNICATIONS	Single phase injection through CENELEC A band.
TECHNOLOGY	ATMEL ATPL230A chipset.
CONNECTOR	Terminal Block 2 Poles 5mm pitch.

A.4.2 LAN interface

PROTOCOLS	Ethernet (802.3).
PORTS	1 port with MDI/MDX auto detection and 10KV isolation option.
SPEED	10/100 mbps (BaseT).
CONNECTOR	RJ45 female.

A.4.3 WWAN interface

STANDARDS	GPRS, UMTS, HSDPA, HSUPA, HSPA+, LTE … Depends on the device's WWAN version.
SPEED	Depends on the device's WWAN version. Please see the manual on the relevant module.
CONNECTOR	2 RF SMA female.
ANTENNA	Depends on the type of WWAN. Please see the antenna catalog for cellular interfaces.

A.4.4 Configuration interface

LOCAL TERMINAL	V.24 9.600-8-N-1-without flow control.
CONNECTOR	DB9 female on the device's front panel.

A.4.5 RS-232 serial interface

STANDARDS	RS-232. Asynchronous serial port with control signals.
SPEED	From 300 to 115200 bps.
CONNECTOR	DB9 female on the device's rear panel (optional).

A.4.6 RS-485 serial interface

STANDARDS	2-4 wire RS-485 /RS-422 configurable through software. Bus termination configurable through software.
SPEED	From 300 to 115200 bps.
CONNECTOR	DB9 female on the device's rear panel (optional).

A.4.7 Power supply

NOMINAL	100-240 V AC.
ABSOLUTE MAXIMUM	85-265 V AC.
MAXIMUM POWER	15 W.
CONNECTOR	Terminal Block 2 Poles 5 mm pitch.

A.4.8 Dimensions and weight

TYPE	Plastic ruggedized casing with DIN rail mount option.
LENGTH x WIDTH x HEIGHT	Without safety cover: 230 x 186 x 50 mm. With safety cover: 270 x 186 x 50 mm.
WEIGHT	650 gr.

A.4.9 Environmental specifications

TEMPERATURE	OPERATING NORMALLY: -10 ºC to +60 ºC STORED: -25º to +70 ºC
RELATIVE HUMIDITY	On: 5 % to 90 %

Appendix B Radio information

B.1 RF GSM/WCDMA specifications

The GSM/WCDMA equipment Regesta PRO PLC model provides WCDMA, GSM, GPRS, EDGE connectivity for networking over several radio frequency bands under 3GPP Standards.

This product is supplied without antennas. Choosing antennas is at the discretion of the operator, but the operator is responsible for complying with local regulations.

Technology: UMTS(WCDMA)/ HSDPA/ HSUPA/ HSPA+/ DC-HSPA+

Bands	**Frequencies**	**Conducted Transmit Power**
Band 1	Tx: 1920-1980 MHz Rx: 2110-2170 MHz	+24 dBm
Band 8	Tx: 880–915 MHz Rx: 925–960 MHz	+24 dBm

Technology: GSM / GPRS / EDGE

Bands	**Frequencies**	**Conducted Transmit Power**
GSM 850 (850 MHz)	Tx: 824–849 MHz Rx: 869–894 MHz	+33 dBm ± 2 dB +27 dBm ± 3 dB
EGSM 900 (900 MHz)	Tx: 880–915 MHz Rx: 925–960 MHz	+33 dBm ± 2 dB +27 dBm ± 3 dB
DCS 1800 (1800 MHz)	Tx: 1710–1785 MHz Rx: 1805–1880 MHz	+30 dBm ± 2 dB +26 dBm ± 3 dB
PCS 1900 (1900 MHz)	Tx: 1850–1910 MHz Rx: 1930–1990 MHz	+30 dBm ± 2 dB +26 dBm ± 3 dB