



Regesta-PRO ER MR Router

Installation Manual

Copyright© Teldat-DM595-I Version 6.4 07/2016 Teldat S.A.

Legal Notice

Warranty

This publication is subject to change.

Teldat S.A. offers no warranty whatsoever for information contained in this manual.

Teldat S.A. is not liable for any direct, indirect, collateral, consequential or any other damage connected to the delivery, supply or use of this manual.

Table of Contents

I	Related Documents	1
Chapter 1	About This Guide	2
1.1	Supported Devices	2
1.2	Who should read this manual?	2
1.3	When should I read this manual?	2
1.4	What is in this manual?	2
1.5	What is not in this manual?	2
1.6	How is the information organized?	2
1.7	Technical Support	2
Chapter 2	Regesta-PRO ER MR	3
2.1	Characteristics	3
2.1.1	Power Supply	3
2.1.2	Monitoring hardware	3
Chapter 3	Components and Power Supply	4
3.1	Components	4
3.1.1	Front Panel	4
3.1.2	Rear Panel	6
3.1.3	Underside Panel	6
3.1.4	Upper Panel	7
3.2	Assembly	8
3.2.1	Installing a DIN rail mount accessory	8
3.2.2	Installing the Protector.	9
3.3	Power Source	10
3.3.1	Connecting the Power Supply	10
3.4	RST Button	11
3.4.1	Restarting the device	11
3.4.2	Default Configuration	11
3.5	Data Connections.	12
3.5.1	Ethernet Switch	12
3.5.2	Connecting the WWAN Antenna (RF connectors)	12
3.5.3	Connecting ADSL/ADSL+/VDSL over ISDN (DSL connector)	13
3.5.4	Connecting to the serial ports	15
Chapter 4	Installing the SIM card	17

4.1	Identifying the SIM trays	17
4.2	Procedure to install the SIM	18
Chapter 5	Compliance	19
5.1	Manufacturer Information	19
5.2	Safety Warnings	19
5.3	WEEE Information	22
5.4	REACH	22
5.5	EC Declaration of Conformity.	22
5.6	CE Marking	23
5.7	National Restrictions	23
5.8	Operating Frequency	23
5.9	FCC Statement.	23
5.9.1	Federal Communications Commission Interference	23
5.9.2	FCC Radiation Exposure Statement.	23
5.9.3	FCC Part 68 Notice	24
5.9.4	Service Requirements.	24
5.10	IC Statement.	24
5.10.1	CAN ICES-3 (A)/NMB-3(A)	24
5.10.2	IC Notice	24
5.10.3	IC Radiation Exposure Statement.	25
Appendix A	Technical Information.	26
A.1	Troubleshooting	26
A.2	Updating the software	26
A.3	Connecting to the router	27
A.3.1	Connecting through the local console (CONF connector).	27
A.3.2	Connection through an IP terminal (LAN 1..6 connectors)	27
A.4	Connectors	28
A.4.1	LAN Connector.	28
A.4.2	DSL Connector.	28
A.4.3	RF Connectors	29
A.4.4	Configuration Connector.	29
A.4.5	RS-232 Serial Port Connectors	29
A.4.6	RS-485 Serial Port Connectors	30
A.5	Technical Specifications	30
A.5.1	LAN Interface	30
A.5.2	DSL Interface	30

A.5.3	Wireless WAN Interface	30
A.5.4	Configuration Interface	31
A.5.5	RS-232 Serial Interface	31
A.5.6	RS-485 Serial Interface	31
A.5.7	Power Supply	31
A.5.8	Dimensions and Weight	31
A.5.9	Environmental Specifications	31
Appendix B	Radio Information	32
B.1	RF LTE Specifications	32
B.2	RF GSM/WCDMA Specifications	33

I Related Documents

Teldat-Dm748-I *Software Updating*

Teldat-Dm781-I *Cellular Interface.*

Chapter 1 About This Guide

This Regesta-PRO ER MR router installation manual contains information on how to correctly install the router in its operating environment.

1.1 Supported Devices

The information provided in this installation guide only applies to the Regesta-PRO ER MR router family.

1.2 Who should read this manual?

This manual should be read by installers who need to install, configure, maintain and monitor the router.

1.3 When should I read this manual?

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

This manual will help you understand your new device in greater depth.

1.4 What is in this manual?

This installation guide contains the following information:

- A description of the general characteristics available in the Regesta-PRO ER MR router family.
- Technical Specifications.
- Power supply requirements.
- Description of the router LEDs and connectors.
- Troubleshooting.

1.5 What is not in this manual?

This manual does not contain information on the device software or on its configuration. For information on how to configure the device, please see the different protocol manuals in <http://www.teldat.com>.

1.6 How is the information organized?

Each chapter focuses on a specific part of the router hardware and its components. All the descriptive and technical specifications, or information on a component, can be found in the relevant chapter.

1.7 Technical Support

Teldat S.A. offers a technical support service. The device software can be upgraded for maintenance and new features.

Contact information:

Web: <http://www.teldat.com>

Tel.: +34 918 076 565

Fax: +34 918 076 566

Email: support@teldat.com

Chapter 2 Regesta-PRO ER MR

2.1 Characteristics

The Regesta-PRO ER MR router family is a range of IP routers particularly suited for hostile and extreme environments. Thanks to their ruggedized mechanics and special characteristics, which allow them to bear extreme temperatures, these routers are especially suited for: industrial environments, industrial telecontrol, distribution installations for electricity, gas, water, etc.

The main characteristic of this router family lies in the possibility in accessing WirelessWAN (WWAN) and ADSL/ADSL2+/VDSL data networks. Some models do not have a DSL interface and, consequently, do not have a connector either.

Thanks to its modular design, this device can quickly adapt to the latest WWAN technologies. The Regesta-PRO ER MR family is compatible with wireless technologies such as GPRS, EDGE, UMTS, HSDPA, HSUPA, HSPA+, LTE, CDMA 2000 1xRTT, CDMA Ev-Do. The basic license makes connection through the GPRS/EDGE technology possible. Additional licenses allow technologies with a wider bandwidth to be supported. Depending on the model, the device may include 0, 1 or 2 WWAN modules. In addition, the device can take up to 2 SIM cards. These can be both active when two modules have been incorporated, or one can play an active role while the other is used as backup in configurations with a single module.

As for LAN networks, this device incorporates a 6 port 10/100BaseT LAN Ethernet Switch. The basic license enables the first 2 ports. By upgrading the basic license, you can enable all 6 ports.

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

The device incorporates a transparent protector that prevents the connectors from being touched while the device is running.

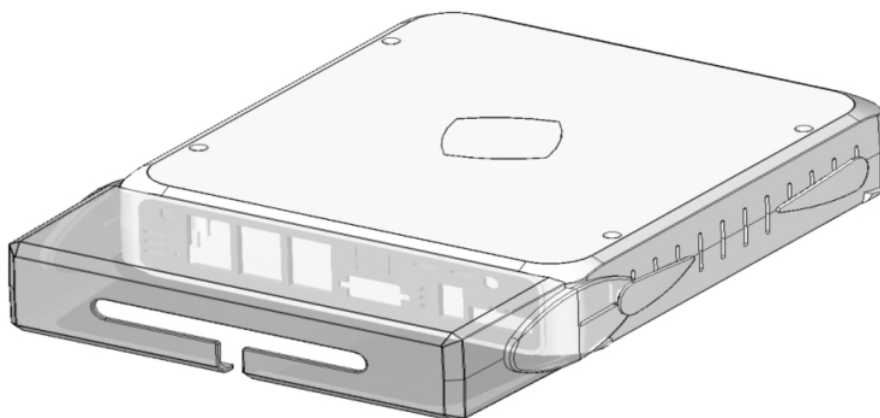


Fig. 1: Regesta-PRO ER MR with transparent protector

2.1.1 Power Supply

For further information on the Regesta-PRO ER MR power sources, please see [Power Source](#) on page 10.

2.1.2 Monitoring hardware

The only way to monitor the Regesta-PRO ER MR router family hardware is through the LEDs on the front panel. The LEDs provide visual information on what is happening in the router. These indicate the status of the hardware components, if there is connection or not, data flow, etc.

For further information on the LEDs panel, please see section [Front Panel](#) on page 4.

Chapter 3 Components and Power Supply

The following chapter provides information on the Regesta-PRO ER MR router family chassis and its components. This information includes:

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

3.1 Components

3.1.1 Front Panel

The following figure shows the front panel.

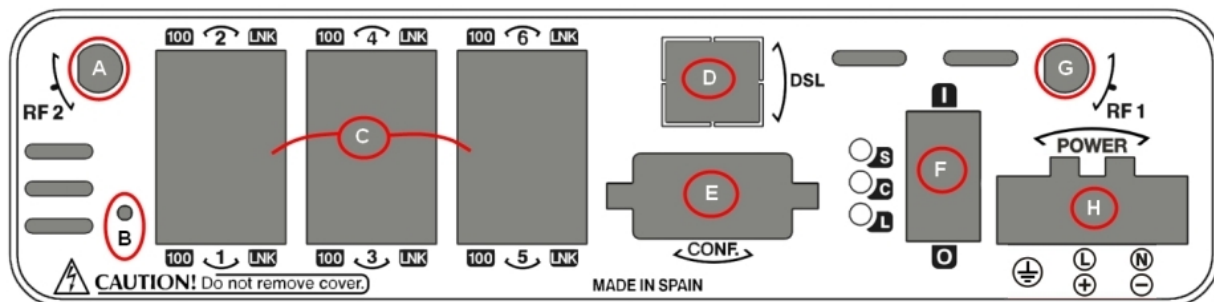


Fig. 2: Front panel

The front panel elements are as follows:

Elements table for the front panel

Item	Description
A	RF2. WWAN antenna connector.
B	RST. Reset button. For further information on how the reset button works, please see section RST Button on page 11 further on in this chapter.
C	6-port Fast Ethernet Switch
D	DSL. RJ-11 connector allowing connection to an ADSL/ADSL2+/VDSL over ISDN network.
E	CONF. DB9 connector providing access to the device local console for configuration and monitoring purposes. (This connector can also be used as an RS-232 asynchronous DCE serial port).
F	I/O. ON/OFF power switch, position I for ON and position O to switch it OFF.
G	RF1. WWAN antenna connector.
H	POWER. Power connection. For more information on the power connection, please see section Connecting the Power Supply on page 10.

In addition to the connectors, the front panel also contains a set of LEDs that provide information on the state of the router.

The LEDs are organized, as shown in the following figure, on the router front panel:

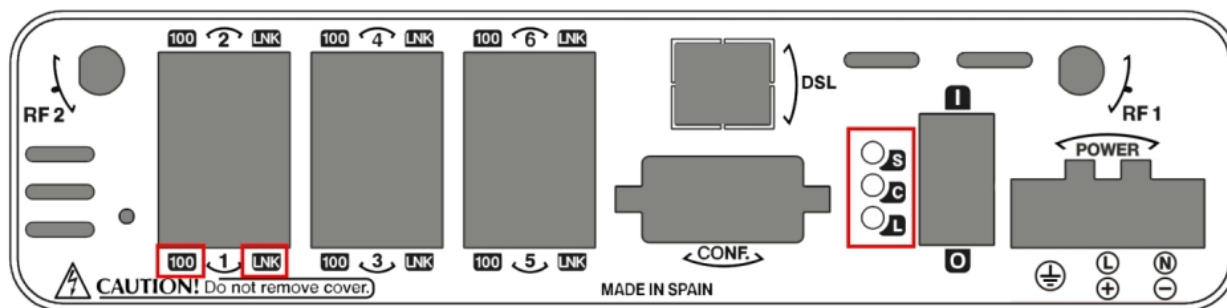


Fig. 3: Front panel LEDs

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

Front panel LEDs table

LED	Associated interface	Status	Description
S	Cellular interface corresponding to the active SIM	Green	SK1 operating SIM. This is processing traffic through the carrier for the SIM installed in this tray.
		Amber	SK2 operating SIM. This is processing traffic through the carrier for the SIM installed in this tray.
C	Cellular interface corresponding to the active SIM or the statue of the DSL connection.	Red	Cellular interface is not available, not installed or not registered.
		Amber	The device has registered in the network and is in process of establishing the PPP protocol.
	In cases where the router is equipped with both an DSL interface and a cellular interface, the color of the LED is operated by both interfaces.	Green	The device is registered, PPP is established and it can send IP traffic through the PPP interface. - Steady: Data is not being transferred. - Flashing: Data is being transferred.
		Red	DSL The device is not connected to the DSL network.
		Yellow	DSL connection is being established.
		Green	The device is connected to the DSL network.
L	Cellular interface corresponding to the active SIM	Green	Coverage level above -90dBm.
		Yellow	Coverage level between -90dBm and

		Red	-100dBm.
		Off	Coverage level below -100dBm. Cellular interface is not active.
100	Associated to each Ethernet switch connector (LAN1...LAN6)	Amber	ON -> Connection at 100Mbps OFF -> Connection at 10Mbps
LNK	Associated to each Ethernet switch connector (LAN1...LAN6)	Green	ON -> Ethernet connection (link) established: - Steady: Data is not being transferred. - Flashing: Data is being transferred.

3.1.2 Rear Panel

The following figure shows the rear panel:

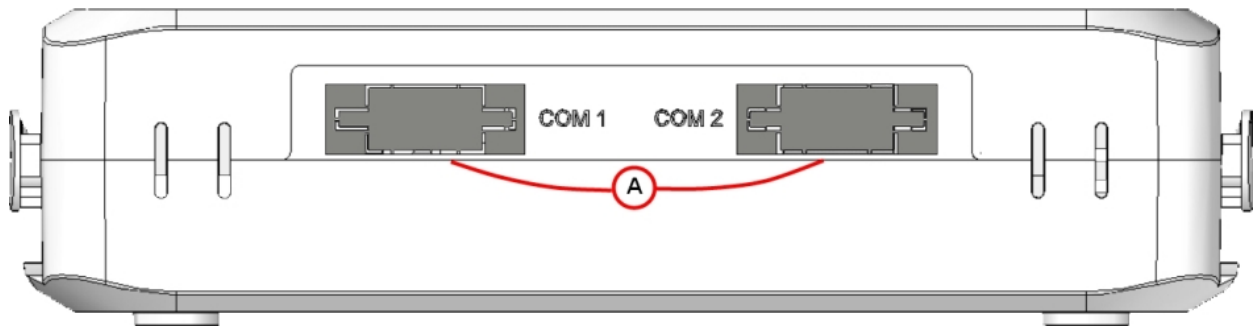


Fig. 4: Rear panel

The rear panel elements are as follows:

Rear panel elements table

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

3.1.3 Underside Panel

The following figure shows the underside panel:

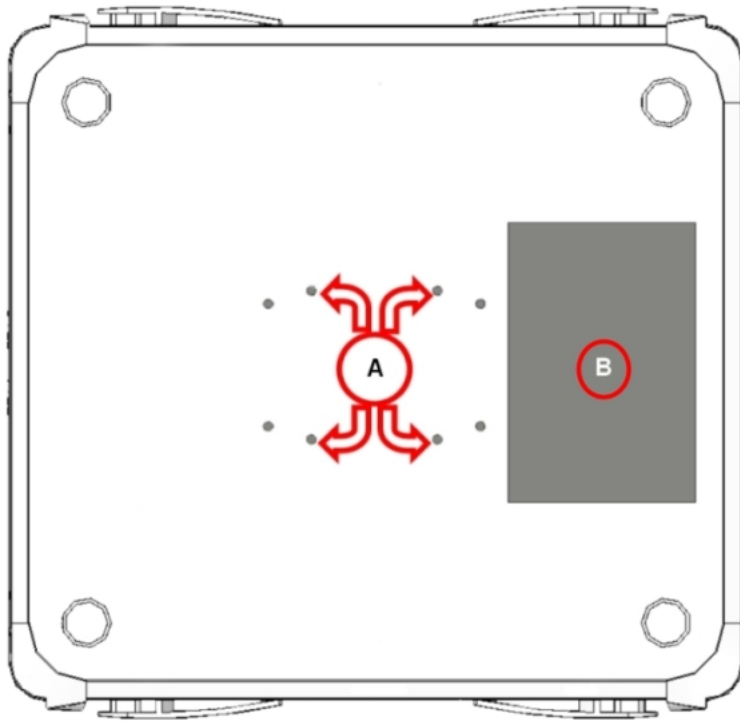


Fig. 5: Underside panel

The underside panel elements are as follows:

Underside panel elements table

Item	Description
A	Slots for the accessories to attach the device to the DIN rail mount. For further information on this accessory, please see section Installing a DIN rail mount accessory on page 8.
B	Platform to which the sticker with product information is attached. This sticker contains information on the device model, MAC, serial number, etc.

3.1.4 Upper Panel

The following figure shows the aspect of the upper panel:

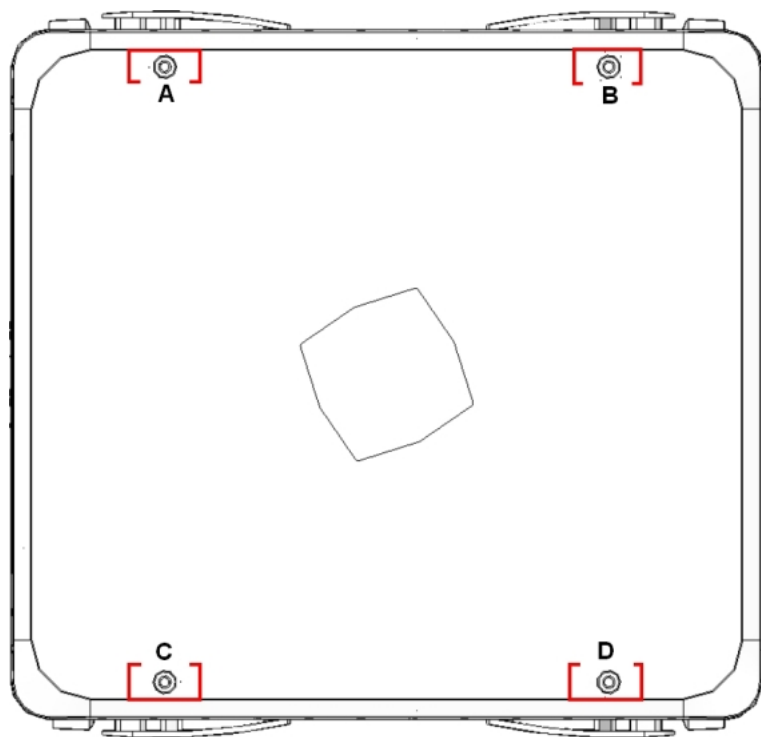


Fig. 6: Upper panel

The upper casing elements are as follows:

Upper casing elements table

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

3.2 Assembly

3.2.1 Installing a DIN rail mount accessory

The device packaging includes a DIN rail mount kit to which the device can be connected to (allowing for several positions).

The kit contains 2 screws to adjust the rail mount to the underside of the device. There are a set of holes on the underside that allow you to place the DIN rail mount in two different positions:

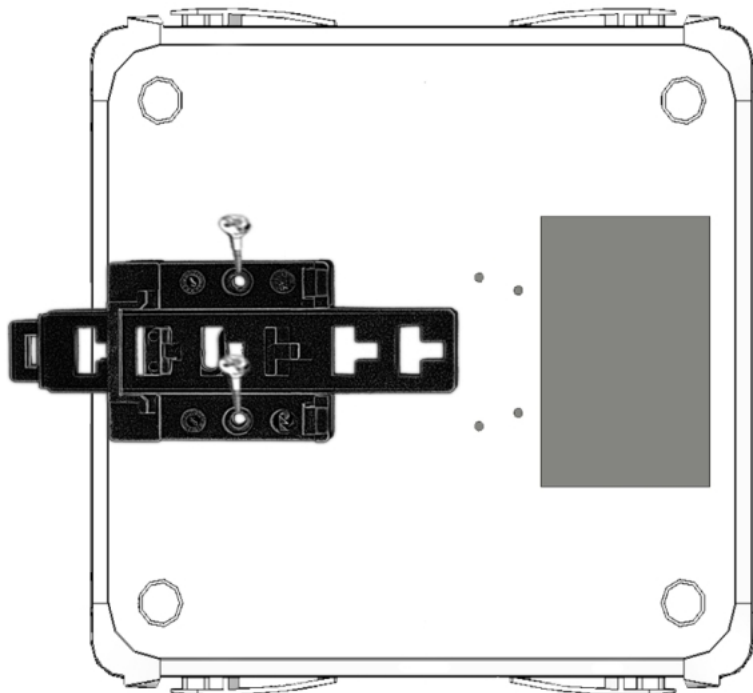


Fig. 7: DIN rail mount: Position 1

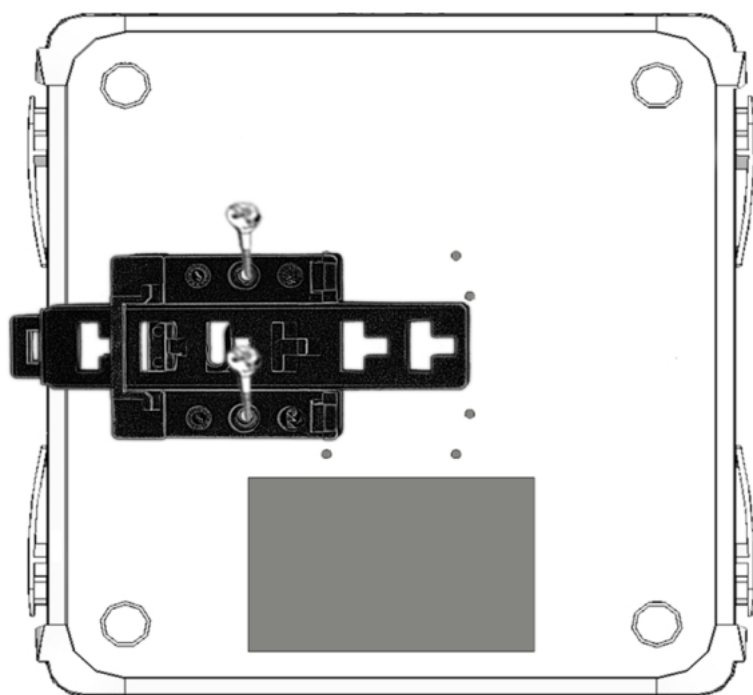


Fig. 8: DIN rail mount: Position 2

3.2.2 Installing the Protector

The transparent protector prevents the device connectors from being manipulated while the device is operating. The device does not come out from the package with the protector on; it is a separate piece.

The following figure shows you how to attach the protector to the device:

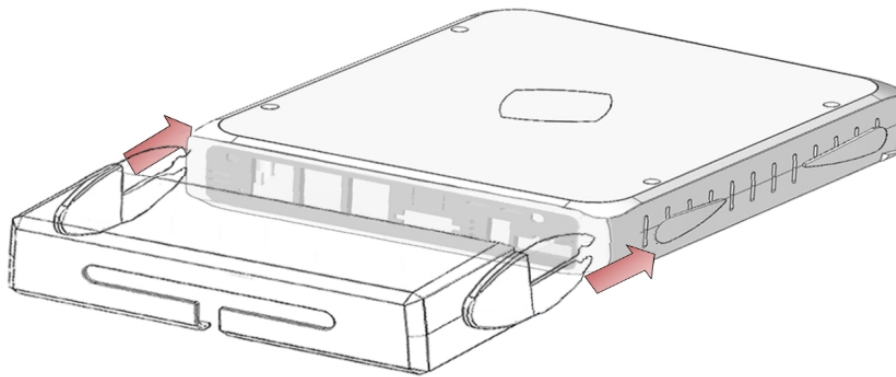


Fig. 9: Attaching the transparent protector

3.3 Power Source

The Regesta-PRO ER MR router family can be powered both through DC voltage as well as AC voltage. The nominal power voltages are 100-240 V A C and 48 V DC.



Note

Before connecting the router, please read the following instructions carefully.

Workplace. Main characteristics

- The device should not be placed amongst papers, magazines or other elements that could hinder natural air circulation.
- Knocks and/or strong vibrations should be avoided during transport, operation and storage.



Warning

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 [To Connect](#) on page 11 and [To Disconnect](#) on page 11.

3.3.1 Connecting the Power Supply

To connect the power supply to the router, please follow the steps set forth in [To Connect](#) on page 11.



Warning

To avoid electric shocks, residual current circulation and other unwanted effects, also affecting communications, the following is recommended:

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

Whether the workplace is provided with an uninterrupted power supply system (UPS), regulated supply or it is independent from the rest (such as lighting, etc.); it is highly recommended that all data devices should be connected to the same power source. This will avoid operating and premature aging problems of drivers and other components.

3.3.1.1 To Connect

- Make sure that the power supply cable is not connected to the device.
- Connect all data cables.
- Connect the power supply cable to the device.
- Place the on/off switch in position 1.
- Lower the transparent protector.

3.3.1.2 To Disconnect

- Raise the transparent protector.
- Place the on/off switch to the 0 position.
- Disconnect the power supply cable from the device.
- Disconnect the data cables.

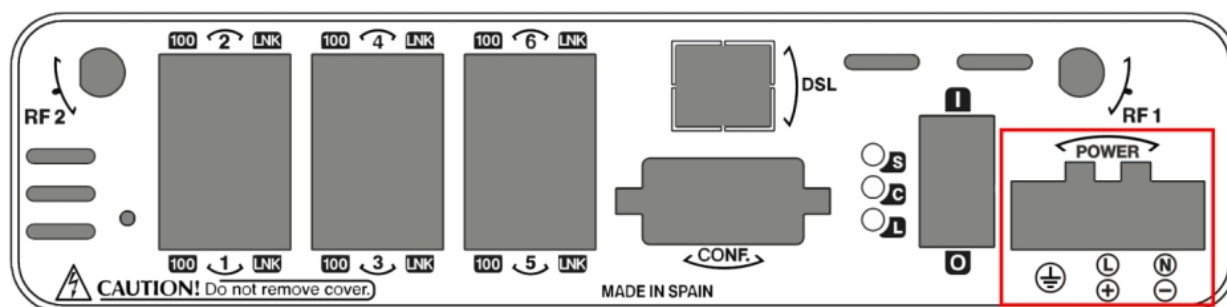


Fig. 10: Power supply connector

The connector has 3 terminals, 2 for both V AC as well as V DC powering, and another, labeled ground, that connects the device to the ground point where the rest of the devices are connected. Although this indicates a positive terminal/line and another negative/neutral, the device can be connected to the power with reverse polarity.

To connect the power to the device, please carry out the steps set forth in [To Connect](#) on page 11: 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

The Regesta-PRO ER MR routers have, on their front panel, a button that can be accessed from the outside and is labeled “RST”. This button has two functions:

- To initiate a restart.
- To restart the device with the default configuration. The default configuration has IP 192.168.1.1 assigned to all switch ports.

The external button is physically protected, so it cannot be accidentally pushed. You need a sharp-edged object to activate it.

3.4.1 Restarting the device

Follow the steps below to restart the device:

- (1) Press the RST button. Device restart is indicated by the 3 LEDs on the front panel lighting up in amber.
- (2) Stop pressing the RST button as soon as the 3 LEDs on the front panel are lit up.
- (3) The device will begin the restart with LEDs S and C off and LED L in green.

3.4.2 Default Configuration

Follow these steps to install the default configuration:

- (1) Press the RST button. Device restart is indicated by the 3 LEDs on the front panel lighting up in amber.
- (2) Keep pressing the RST button. The S LED will flash green while you are still pressing the RST button. This state implies that the device configuration has changed to the default configuration.
- (3) Stop pressing the RST button to allow the device to restart.
- (4) The device will begin the restart with LEDs S and C off and LED L in green.
- (5) As the device now has the default configuration, you can access it through the IP bearing in mind that the default address for the equipment is 192.168.1.1, and that it is accessible from any switch port.

3.5 Data Connections

The Regesta-PRO ER MR router family has the following data connectors:

3.5.1 Ethernet Switch

The Regesta-PRO ER MR family incorporates a 6 port Switch, 10/100 BaseT with automatic MDI/MDIX to connect to the LAN. This has a 100 LED to indicate connection at 100 Mbps and a LNK LED indicating the physical connection.

The first two ports (port 1 and 2) are enabled through the basic license. You can enable the rest of the ports through additional licenses.

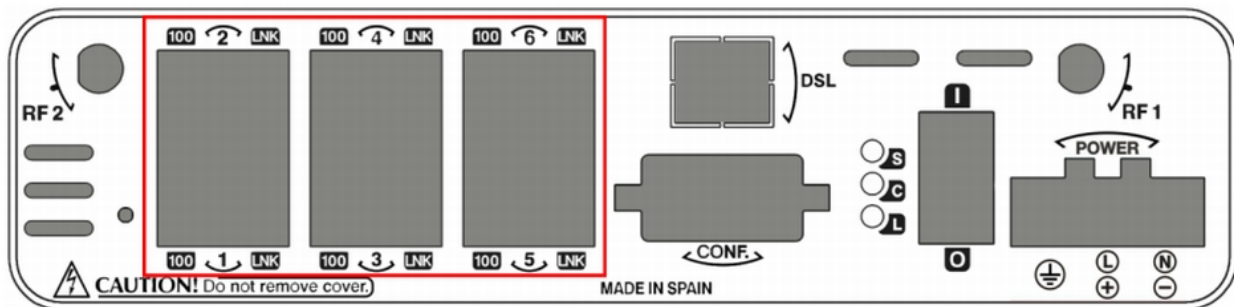


Fig. 11: LAN switch ports (6)

3.5.2 Connecting the WWAN Antenna (RF connectors)

The Regesta-PRO ER MR routers have two connectors for RF antennas. To assemble and disassemble the antennas, simply screw them into the connectors labeled as RF1/RF2 (located on the front panel of the device).

In cases involving a device with 2 WWAN modules, each connector is connected to each of the WWAN modules (MAIN internal connectors for both modules). Whenever a device has just one WWAN module, the RF1 connector is connected to the module's MAIN connector and the RF2 connector to the AUX connector in the same module. This configuration means you can use diverse techniques to improve the quality of the radio connection (valid for HSDPA, HSUPA, HSPA+ and LTE technologies).

Installing an antenna in the Regesta-PRO ER MR routers is necessary to improve the quality of the signal received and transmitted by the WWAN module (GPRS, UMTS, HSDPA, HSUPA, etc.).

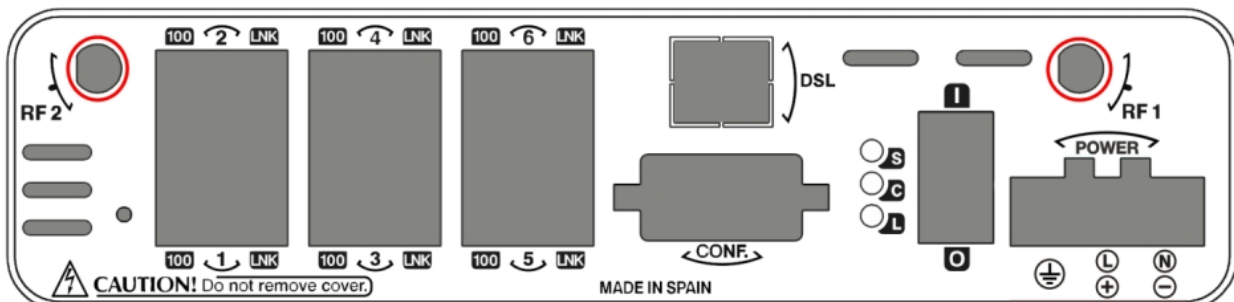


Fig. 12: WWAN antenna connectors

**Caution**

To get high-quality performance, the router must always have the WWAN antennas installed.

The WWAN interfaces with access to the 2G network (GPRS/EDGE) are operative in all the devices in this range. To access the 3G network (UMTS/HSDPA/HSUPA) or HSPA+ the device must have additional licenses incorporated.

Teldat has a series of accessories (dipole antennas, indoor antennas, roof mount antennas, extension cables, etc.) that allow you to install the Regesta-PRO ER MR routers in different locations.

3.5.2.1 Positioning the Antenna

The antenna orientation and its location with respect to other wireless devices and radiation devices (such as communication devices, personal computers, etc.), can significantly influence the device performance.

The 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 other interferences due to radio frequencies (RF).

To achieve the best coverage, follow these steps:

- Whenever possible, place the antenna where there are no physical obstacles. Obstacles between the antenna and the base station degrade the wireless signal. Place the antenna above ground level and steer it towards the nearest base station.
- Density of materials also affects the antennas. Place them away from any type of wall, metal screens, mirrors, etc.
- Do not place the antenna near columns that can produce shadow areas and reduce the coverage zone.
- Keep the antenna away from metal pipes such as canals air-conditioning, etc.
- Please bear in mind that other wireless devices such as telephones, microwaves, etc., can temporarily interfere with the quality of the wireless signal.
- We do not recommend that you install the antennas near or between racks containing communication devices, computers, etc. 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 any equipment that contains 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 interference in other devices. Do not use the device in areas where medical equipment is installed.
- In order to ensure that you are complying with the R&TTE 1999/5/EC norm, the device must be at least 15 cm away from any person when operating.

3.5.3 Connecting ADSL/ADSL2+/VDSL over ISDN (DSL connector)

The Regesta-PRO ER MR router has a DSL connector that allows connection to an ADSL/ADSL2+/VDSL network over ISDN. It is a 4-wire female RJ11, and **only the two middle ones are used** for data transmission and reception.

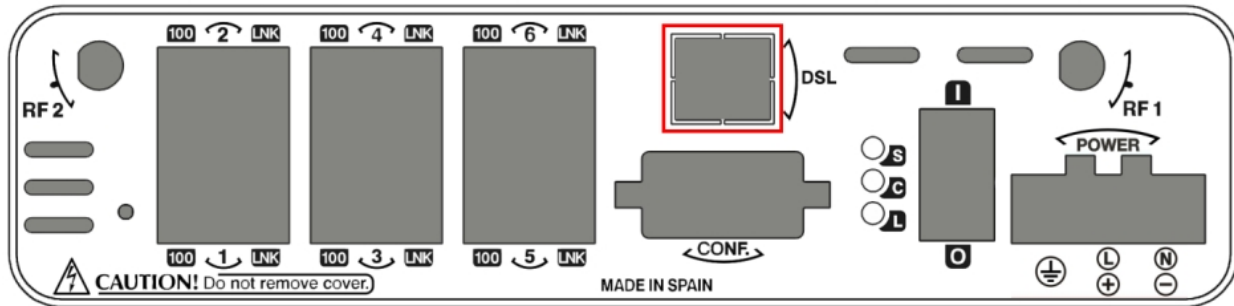


Fig. 13: DSL connector (ADSL & ADSL2+)



Note

The cable approvals may depend on the recommendations established in the country of installation of equipment. The cable always must be 18 AWG or greater.

The *Full Rate* ADSL (ITU G.dmt or G.922.1) operating mode uses a higher transmission capacity that does not allow the use of telephones directly connected to the same line. It is necessary to use a mechanism known as “*splitter*”, which separates the band frequencies for voice telephony from those used by the ADSL connection to transmit data. This way, interferences between the telephone and ADSL services are avoided. The next figure shows a typical installation with a *splitter*.

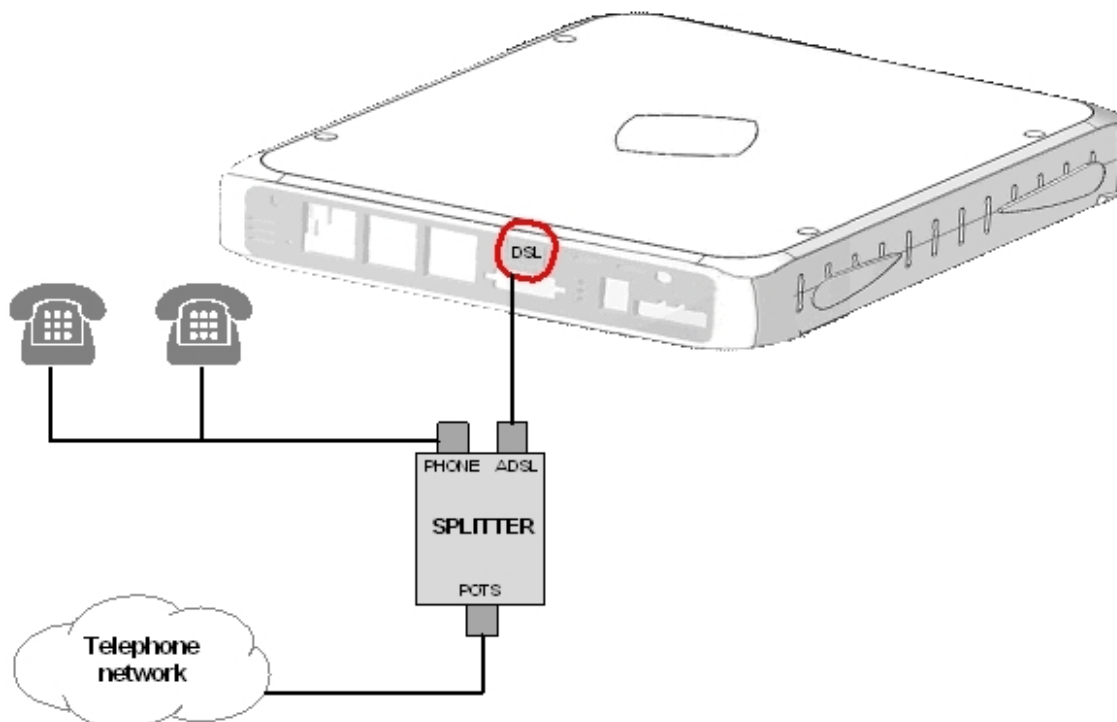


Fig. 14: ADSL installation with a splitter

The G. Lite (ITU G.922.2) operating mode uses reduced transmission power. It allows the telephones directly connected to the same line to be used through the installation of a “micro-filter”. This device ensures that the ADSL signal does not reach the telephone, and that undesired signals generated by the telephone do not interfere with the ADSL signal.

A typical installation with micro-filters is shown in [Fig. 15](#) on page 15:

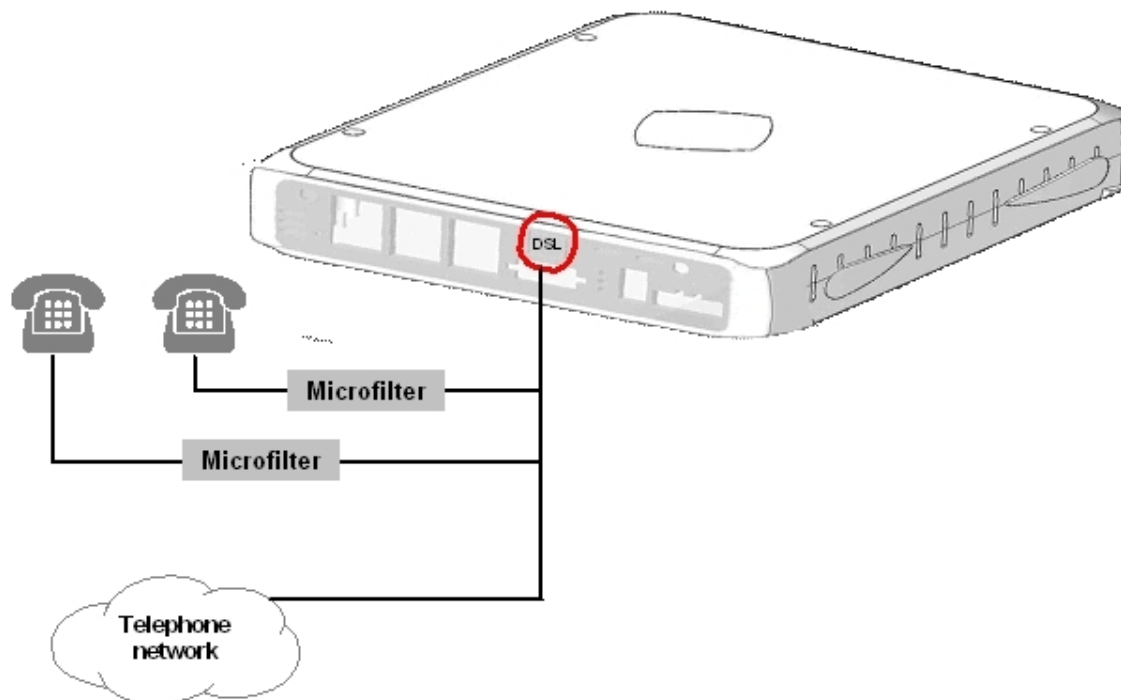


Fig. 15: ADSL installation with a micro-filter

3.5.4 Connecting to the serial ports

The Regesta-PRO ER MR router family can have one or various female DB9 connectors, depending on the model.

3.5.4.1 Console connector as serial port (CONF connector)

It's possible to convert the console port into an RS-232 asynchronous DCE serial port. This port has the following characteristics:

- DCE port.
- RS-232 norm.
- Maximum speed of 38400 bps.
- Only the following signals are available: RxD (pin 2), TxD (pin 3) and GND (5).
- DB-9 connector.

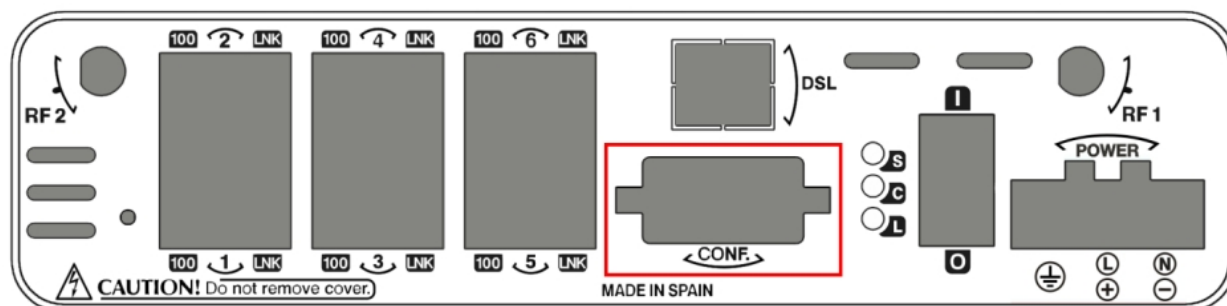


Fig. 16: Console connector as serial port

To use this as the router's configuration port, please see section [Connecting to the router](#) on page 27.

3.5.4.2 Asynchronous serial ports

Some models are equipped with 2 additional serial ports. These serial ports can be RS-232 or RS-485/RS-422. They have the following characteristics:

RS-232:

- (a) DCE port.

- (b) Maximum speed of 115200 bps.
- (c) All control signals are available.
- (d) DB-9 connector.

RS-485/RS-422:

- (a) 2/4 wires configurable through software.
- (b) Bus termination configurable through software.
- (c) Maximum speed of 115200 bps.
- (d) DB-9 connector.

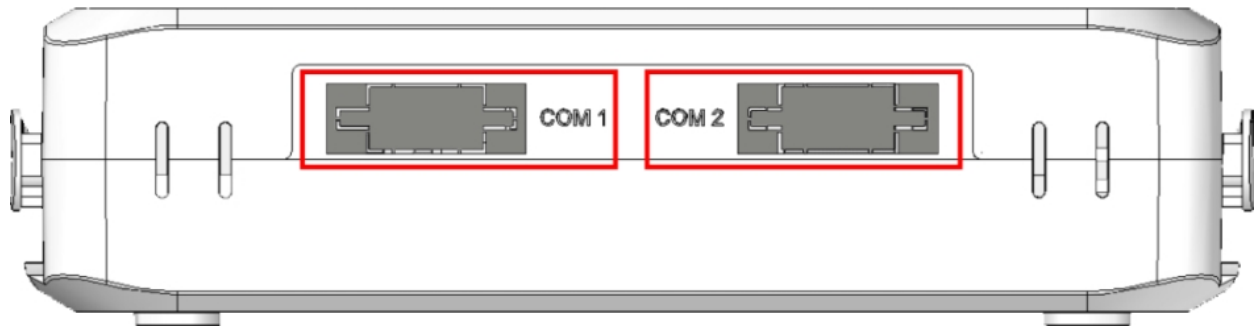



Fig. 17: RS-232 asynchronous serial connectors

Chapter 4 Installing the SIM card

The Regesta-PRO ER MR routers have Wireless WAN interfaces that, in order to operate, may require at least one SIM card to be inserted into the device. There are certain services (CDMA) provided by several carriers in some countries that do not require SIM cards.

The Regesta-PRO ER MR routers have two SIM trays. Both trays are located inside the device casing and are labeled SK1 and SK2.

In installations where only one SIM card is required, we recommend that it is 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.

When inserting the SIM cards, please protect yourself against electrostatic discharges (ESD).

Do not touch the SIM cards connectors.

To access the SIM tray, you need to open the upper casing of the device. To do this, you need to undo the four screws located on the upper side of the device.

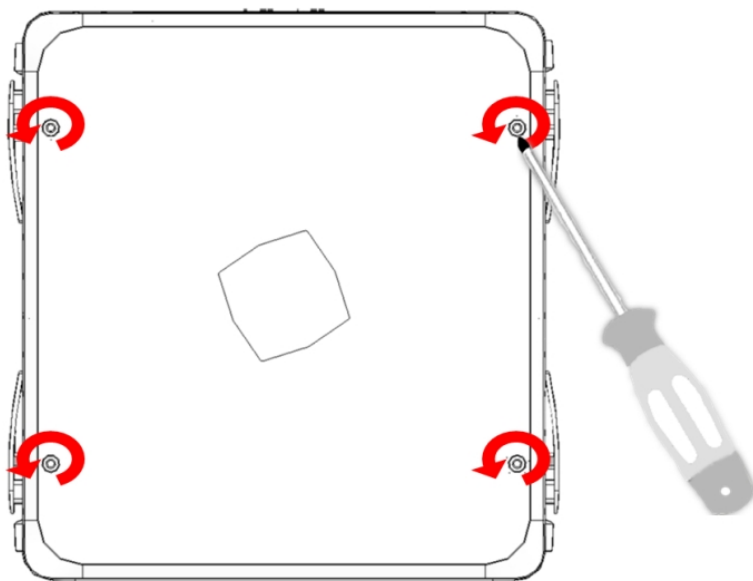


Fig. 18: Screws on the upper casing

4.1 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 ER MR incorporates 2 SIM cards, which allow you to execute some special configurations. One example is installing two SIMs and using one as backup to the other. To carry out this type of configuration, you must assign a tray to each SIM (since they require different configuration parameters).

The SIM trays are identified as SK1 and SK2 i.e. socket 1 and socket 2.

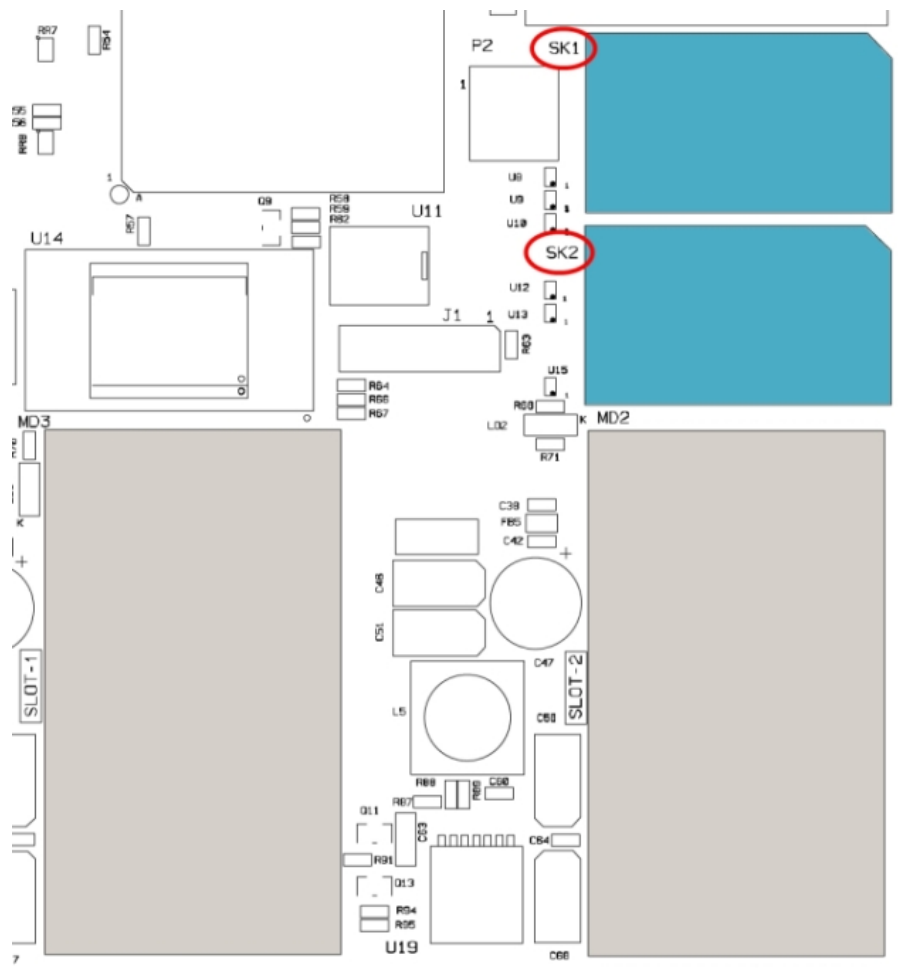


Fig. 19: Location of the SK1 and SK2 SIM trays

4.2 Procedure to install the SIM

In order to insert a SIM card in a tray, locate the retaining flange (metal fastening with OPEN and LOCK on it) so you can open the tray and place the SIM card on it. Then:

- (1) Push the fastening in the direction indicated by the arrow with the word OPEN.
- (2) Open the upper part of the tray.
- (3) Fully insert the SIM card using the guides.
- (4) Return the tray to its original position.
- (5) While pressing on the tray, push the fastening towards the direction indicated by the word LOCK until it is firmly in place.

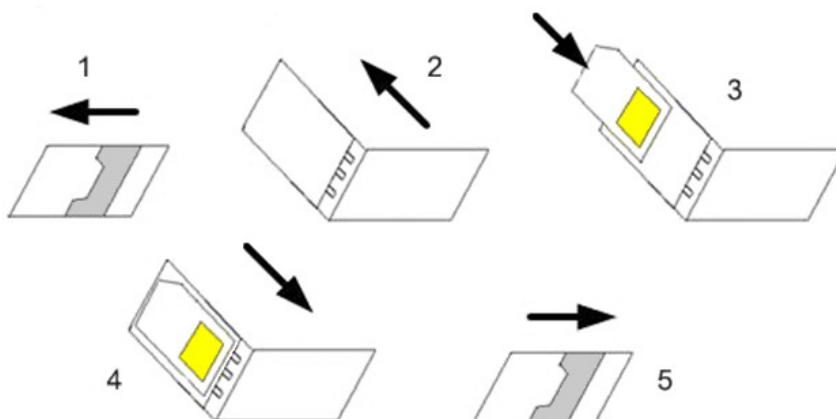




Fig. 20: Inserting the SIM in the internal tray



Chapter 5 Compliance


5.1 Manufacturer Information

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

5.2 Safety Warnings

	<p>The Regesta-PRO ER MR is a Class II permanently attached device intended for installation in restricted access locations. Safety regulations require that it be added to a frame fitted with a 10 amp thermal circuit breaker.</p> <p>The Regesta-PRO ER MR power connection terminals support cables between 0.2 and 3 mm² (24-12 AWG). A larger diameter cable will have lower losses.</p>
	<p>Regesta-PRO ER MR — это несъемное навесное устройство класса II, предназначенное для установки в местах с ограниченным доступом. Требования правил техники безопасности предписывают его установку на раме, оснащенной 10-амперным тепловым размыкателем.</p> <p>С клеммами электрических соединений Regesta-PRO ER MR можно использовать кабели сечением от 0,2 до 3 мм² (24-12 AWG). Потери в кабеле большего сечения будут ниже.</p>
	<p>Le Regesta-PRO ER MR est un dispositif de classe II à fixation permanente qui est installé sur des sites à accès restreint. Les règles de sécurité exigent qu'il soit placé sur un châssis équipé d'un disjoncteur thermique de 10 ampères.</p> <p>Les connecteurs d'alimentation secteur du Regesta-PRO ER MR peuvent accepter des câbles d'une section comprise entre 0,2 et 3 mm² (24-12 AWG). Si la section de diamètre est plus large, les pertes seront réduites.</p>
	<p>El Regesta-PRO ER MR es un equipo de Clase II permanentemente conectado destinado a su instalación en las Zonas de Acceso Restringido. La normativa de seguridad establece que debe añadirse en el bastidor donde vaya instalado un dispositivo de desconexión tipo magnetotérmico de 10Amáx.</p> <p>Los terminales de conexión de alimentación del Regesta-PRO ER MR admiten cables entre 0,2 a 3 milímetros cuadrados de sección (24-12 AWG). Mayor diámetro implica menores pérdidas.</p>
	<p>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,</p>

	connect and disconnect the cables following the steps set forth in <i>To Connect</i> on page 11 and <i>To Disconnect</i> on page 11.
	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 câbles 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 "Conectar" y "Desconectar".
	<p>All interconnected communication devices should be plugged to THE SAME GROUNDED POWER OUTLET, which should at the same time be of good quality (lower than 10 ohms).</p> <p>Whether the workplace is provided with an uninterrupted power supply system (UPS), regulated supply or it is independent from the rest (such as lighting, etc.); it is highly recommended that all data devices should be connected to the same power source. This will avoid operating and premature aging problems of drivers and other components.</p>
	<p>Убедитесь в том, что все связанные устройства связи подключены к ОДНОЙ И ТУ ЖЕ ЗАЗЕМЛЕННОЙ ШТЕПСЕЛЬНОЙ РОЗЕТКЕ высокого качества (сопротивление не превышает 10 Ом).</p> <p>Проверьте, оборудовано ли рабочее место источником бесперебойного питания (ИБП), источником регулируемого питания, или оно является независимым от других систем (таким как освещение и т.п.); строго рекомендуется подключать все информационные устройства к одному источнику питания. Это поможет предотвратить эксплуатационные проблемы и преждевременное старение приводов и других деталей.</p>
	<p>Tous les dispositifs de communications interconnectés doivent être branchés sur la même prise correctement mise à la terre, qui doit être de bonne qualité (moins de 10 ohms).</p> <p>Soit le lieu de travail équipé d'un système d'alimentation sans interruption (ASI), alimentation régulée ou indépendante du reste (comme l'éclairage, etc), il est fortement recommandé que tous les dispositifs de données soient reliés à la même source d'alimentation. Cela permettra d'éviter des problèmes de fonctionnement et de vieillissement prématuré de drivers et d'autres composants.</p>
	<p>Todos los equipos de comunicaciones interconectados deberán estar unidos a UNA MISMA TOMA DE TIERRA, a ser posible de buena calidad (inferior a 10 ohmios).</p> <p>Si la instalación está dotada de un Sistema de Alimentación Ininterrumpida (SAI), alimentación estabilizada, o bien es independiente del resto (alumbrado, etc.), conecte todos los equipos de comunicaciones a la misma fuente de alimentación. Así, se ahorrará problemas de funcionamiento y envejecimiento prematuro de drivers y demás componentes.</p>
	<p>Never install the SIM cards when the device is switched on.</p> <p>Always disconnect the device from the main power supply before installing the SIM cards.</p>

	<p>Always disconnect the device before removing the casing to access the trays.</p> <p>When inserting the SIM cards, please protect yourself against electrostatic discharges (ESD).</p> <p>Do not touch the SIM card connectors.</p>
	<p>Никогда не устанавливайте SIM-карты, когда устройство включено.</p> <p>Перед установкой SIM-карт отключите устройство от источника питания.</p> <p>Всегда отключайте устройство перед тем, как снять корпус и извлечь лотки.</p> <p>При установке SIM-карты, пожалуйста, защитите себя от электростатических разрядов (ESD).</p> <p>Не прикасайтесь к контактам SIM-карты.</p>
	<p>N'installez jamais la carte SIM lorsque l'appareil est allumé.</p> <p>Débranchez toujours l'appareil de l'alimentation électrique principale avant d'insérer les cartes SIM.</p> <p>Débranchez toujours l'appareil avant de retirer le boîtier pour accéder aux baies.</p> <p>Lors de l'insertion de la carte SIM, protégez-vous contre les décharges électrostatiques (ESD).</p> <p>Ne touchez pas les connecteurs des cartes SIM.</p>
	<p>No instale nunca las tarjetas SIM con el equipo encendido.</p> <p>Desconecte siempre el equipo de la red antes de instalar las tarjetas SIM.</p> <p>Desconecte siempre el equipo antes de desmontar la carcasa para acceder a las bandejas.</p> <p>Al insertar las tarjetas SIM, protéjase contra descargas electroestáticas (ESD).</p> <p>No toque los conectores de las tarjetas SIM.</p>
	<p>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.</p>
	<p>Оборудование должно эксплуатироваться квалифицированным персоналом; в противном случае устройство может быть повреждено и впоследствии работать неисправно.</p>
	<p>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.</p>
	<p>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.</p>

5.3 WEEE Information



The waste container symbol with the >X< indicates that the device must be disposed of separately from normal domestic waste at an appropriate waste disposal facility at the end of its useful service life.

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.

5.4 REACH

In compliance with the REACH Candidate List, the delivered product and product packaging do not contain chemical substances 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 currently provided to consumers upon request.

5.5 EC Declaration of Conformity

English (EN)	<p>This equipment is in compliance with the essential requirements and other relevant provisions of:</p> <p>Directive 2014/53/EU (RED) or</p> <p>Directive 2014/30/EU (EMC)</p> <p>Directive 2014/35/EU (LVD)</p> <p>Directive 2009/125/EC (ErP)</p> <p>Directive 2011/65/EU (RoHS)</p> <p>of the European Parliament</p>
Spanish (ES) Español	<p>Este dispositivo cumple con los requisitos esenciales y con las normas correspondientes de las siguientes directivas:</p> <p>Directiva 2014/53/UE (RED) o</p> <p>Directiva 2014/30/UE (EMC)</p> <p>Directiva 2014/35/UE (LVD)</p> <p>Directiva 2009/125/CE (ErP)</p> <p>Directiva 2011/65/UE (RoHS)</p> <p>del parlamento Europeo</p>



Note

- Directive 2014/53/EU (RED) replaces Directive 1999/5/EC (R&TTE) on 13th June 2016
- Directive 2014/30/EU (EMC) replaces Directive 2004/108/EC (EMC) on 20th April 2016
- Directive 2014/35/EU (LVD) replaces Directive 2006/95/EC (LVD) on 20th April 2016

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

<http://www.teldat.com>

5.6 CE Marking

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



5.7 National Restrictions

In accordance to article 10 of 2014/53/EU we inform you that there may be national restrictions and requirements for authorization. The requirements for any country may evolve. Teldat S.A. recommends that you check with local authorities for the latest status of their national regulations.

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

Make sure to match the characteristics of the antennas used to the regulations valid for the installation location.

5.8 Operating Frequency

To check the operating frequencies working in the device, see Appendix [RF LTE Specifications](#) on page 32 and [RF GSM/WCDMA Specifications](#) on page 33

5.9 FCC Statement

5.9.1 Federal Communications Commission Interference

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interferences that users will be required to correct at their own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

5.9.2 FCC Radiation Exposure Statement

Modular Approval for use as a module in mobile-only RF exposure conditions. Antenna gain, including cable loss, must not exceed 5 dBi in Cellular Band and 3.3 dBi in PCS band to comply with power limits and RF exposure thresholds. The antenna(s) used for this transmitter must be installed at least 20 cm away from all persons. The antenna(s) used for this transmitter must not be co-located or operate together with any other antennas or transmitters. End-users must receive the information necessary to comply with RF exposure levels for final host devices and installations.

5.9.3 FCC Part 68 Notice

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA.

If this equipment [Enterprise Router] causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If you experience trouble with this equipment, you disconnect it from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

Please follow instructions for repairing; not to alternate or repair any parts of device except specified.

If the telephone company requests information on what equipment is connected to their lines, inform them of:

- (a) The telephone number that this unit is connected to,
- (b) The ringer equivalence number [01B]
- (c) The USOC jack required [RJ11C], and
- (d) The FCC Registration Number [not available]

The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

5.9.4 Service Requirements

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. The contact information can be found at:

Web: service.esd.alcatel-lucent.com

Email: esd.support@alcatel-lucent.com

5.10 IC Statement

5.10.1 CAN ICES-3 (A)/NMB-3(A)

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

5.10.2 IC Notice

This product meets the applicable Industry Canada technical specifications.

Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada.

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected

to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices not exceed five.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

5.10.3 IC Radiation Exposure Statement

This equipment complies with the radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Déclaration d'exposition aux radiations au Canada:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé.

Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Appendix A Technical Information

A.1 Troubleshooting

The following table can help you solve problems when installing the device. If you cannot solve the problem, contact your dealer for more information.

Symptom	Solution
None of the LEDs lights up on the device.	Check the power supply to the device (power cable, main power outlet).
The local console does not respond.	Check that the console cable is the right one and that it is connected to the device and the asynchronous terminal. Check that the terminal has the correct port configured. Check that the terminal configuration is 9600 8N1. Check that the console is not an events process.
The local console only displays rubbish.	Check that the terminal has the correct port configured. Check that the terminal configuration is 9600 8N1.
You have forgotten the access password for the device.	Ignore the configuration through the RST button (as explained in the relevant section).
The date and time in the device are lost on when restarted.	Parameters configured through the <i>time set</i> command will be lost when the device restarts. Use the NTP protocol to keep the date and time configuration.
The LAN LED does not light up in green.	Check the Ethernet cable and the network connection (you may need a crossover cable).
The S LED is red.	Check that the SIM card has been inserted correctly, or Check that the SIM PIN is correct, or Check that the antenna is properly installed (been screwed in correctly), or Get your technical service to check that the device is in the optimum position for the service.

A.2 Updating the software

The Regesta-PRO ER MR routers can be updated to new releases. Please contact your distributor for further details on new releases.

There are various ways to update a Teldat router. For further information, please see manual “Teldat-Dm748-I *Software Updating*”.

The software required to update Teldat routers is supplied in a format known as **distribution**. This consists of a single file which contains all the files needed to update your device as well as in-depth information on the contents of the files.

The Regesta-PRO ER MR router incorporates independent modules for the Wireless WAN interface. You can pick modules from different manufacturers or choose several modules from the same provider, depending on the technology used. Generally, the firmware is independent from the device's software. There is an UPGRADE file for each Wireless LAN module. Please ask your distributor for the correct UPGRADE file (according to the module in your device). The manual describing the Cellular Interface (Teldat-Dm781-I) explains how to upgrade the module.

A.3 Connecting to the router

There are two ways of accessing the device CLI:

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

A.3.1 Connecting through the local console (CONF connector)

The Regesta-PRO ER MR routers have a DB-9 female connector on the front panel known as “**CONF.**”, which provides access to the device local console. In order to configure this, you must connect the “**CONF.**” port to an asynchronous terminal (or to a PC with terminal emulation).



Note

Configuration for the terminal must be as follows:

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

Connection to the configuration port can be done by joining a DB9 male connector cable to a DB9 female. If the terminal has DB25 connectors, you will need to use an additional adapter.

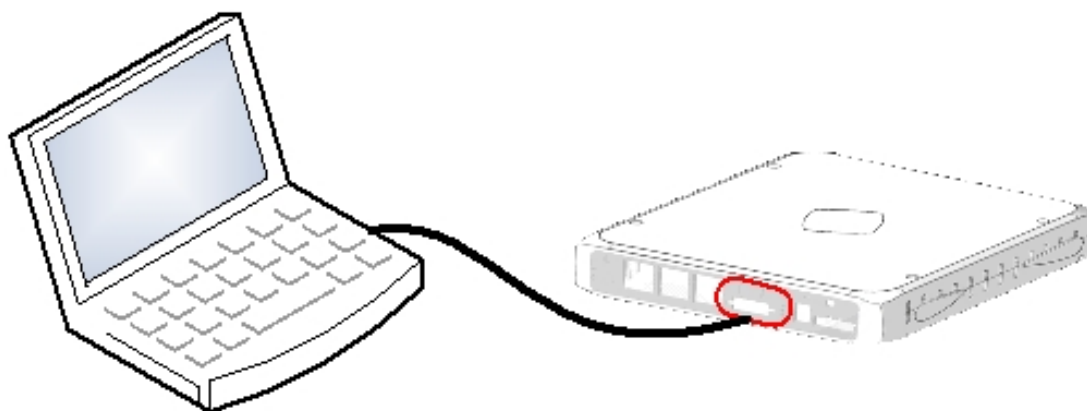


Fig. 22: Connection for configuration

A.3.2 Connection through an IP terminal (LAN 1..6 connectors)

The Regesta-PRO ER MR router includes a default configuration that activates if you haven't configured anything previously.

The router's default configuration establishes the following IP address and access mask:

- IP address: 192.168.1.1
- IP mask: 255.255.255.0



Note

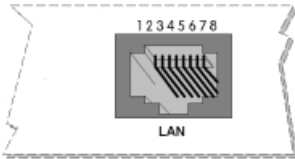
Some devices leave the factory with customized settings. This personalization can mean that the default configuration is different from the one shown above.

This initial configuration allows you to access the device configuration console through the Telnet IP protocol. To do this, follow these steps:

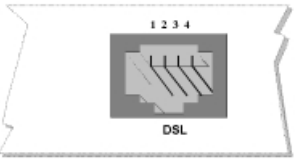
- Configure the IP terminal (normally a PC) Ethernet interface with an IP address within the range [192.168.1.2, 192.168.1.254] and with mask 255.255.255.0. E.g. 192.168.1.2, 255.255.255.0.
- Connect the IP terminal Ethernet interface to any of the Regesta-PRO ER MR router's Ethernet Switch ports (LAN1..2) through the Ethernet cable (RJ45) provided.
- Initiate a Telnet session from the IP terminal to IP address 192.168.1.1 (Regesta-PRO ER MR default address).
- The default configuration does not ask for credentials (user/password) to access the console.

A.4 Connectors


A.4.1 LAN Connector

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

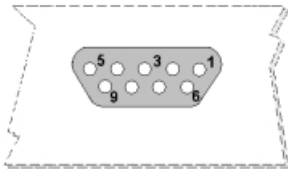
A.4.2 DSL Connector

RJ11 DSL	RJ11 PIN	DSL
	1	Joined to 2
	2	Line
	3	Line
	4	Joined to 3

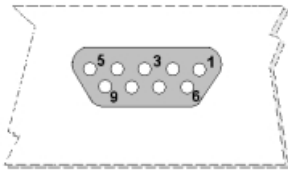
A.4.3 RF Connectors

	PIN	ANT
	Internal	RF in/out
	External	GND

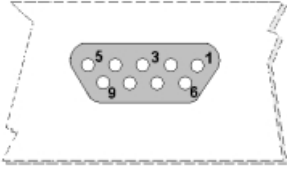
A.4.4 Configuration Connector

DB9 CONFIGURATION	PIN	CONF
	1	--
	2	RxD
	3	TxD
	4	--
	5	GND
	6	--
	7	--
	8	--
	9	--

A.4.5 RS-232 Serial Port Connectors

DB9	PIN	SERIAL
	1	CD
	2	RxD
	3	TxD
	4	DTR
	5	GND
	6	DSR
	7	RTS
	8	CTS
	9	--

A.4.6 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.5 Technical Specifications

A.5.1 LAN Interface

PROTOCOLS	Ethernet (802.3)
SPEED	Switch 10/100 Mbps (Base T)
CONNECTOR	RJ45 female

A.5.2 DSL Interface

STANDARDS	Please see the DSL manual
SPEED	Please see the DSL manual
CONNECTOR	RJ11 female (optional)

A.5.3 Wireless WAN Interface

STANDARDS	GPRS, UMTS, HSDPA, HSUPA, HSPA+, LTE ... Depends on the device's wireless WAN version.
SPEED	Depends on the device's wireless WAN version. Please see the manual on the relevant module.
CONNECTOR	RF SMA female. (optional)
ANTENNA	Depends on the type of wireless WAN. Please see the catalog on the antennas for Cellular interfaces.

A.5.4 Configuration Interface

LOCAL TERMINAL	V.24 9600-8-N-1 without flow control
CONNECTOR	DB9 female on the front panel of the device.

A.5.5 RS-232 Serial Interface

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

A.5.6 RS-485 Serial Interface

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

A.5.7 Power Supply

NOMINAL	100-240 V AC, 48 V DC
ABSOLUTE MAXIMUM	85-265 V AC, 40-75 V DC
MAXIMUM POWER	15 W

A.5.8 Dimensions and Weight

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

A.5.9 Environmental Specifications

AMBIENT TEMPERATURE	ON: -10 °C to +60 °C OFF: -25 °C to +70 °C
---------------------	---

Appendix B Radio Information

B.1 RF LTE Specifications

The LTE equipment Regesta-PRO ER MR-4G model provides LTE, DC-HSPA+, HSPA+, HSDPA, HSUPA, WCDMA, GSM, GPRS, EDGE connectivity for networking over several radio frequency bands under 3GPP Standards.

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

Technology: LTE

Bands	Frequencies	Conducted Transmit Power
Band 1	Tx: 1920-1980 MHz Rx: 2110-2170 MHz	+23 dBm \pm 1 dB
Band 3	Tx: 1710-1785 MHz Rx: 1805-1880 MHz	+23 dBm \pm 1 dB
Band 7	Tx: 2500-2570 MHz Rx: 2620-2690 MHz	+22 dBm \pm 1 dB
Band 8	Tx: 880-915 MHz Rx: 925-960 MHz	+23 dBm \pm 1 dB
Band 20	Tx: 832-862 MHz Rx: 791-821 MHz	+23 dBm \pm 1 dB

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

Bands	Frequencies	Conducted Transmit Power
Band 1	Tx: 1920-1980 MHz Rx: 2110-2170 MHz	+23 dBm \pm 1 dB
Band 2	Tx: 1850-1910 MHz Rx: 1930-1990 MHz	+23 dBm \pm 1 dB
Band 5	Tx: 824-849 MHz Rx: 869-894 MHz	+23 dBm \pm 1 dB
Band 8	Tx: 880-915 MHz Rx: 925-960 MHz	+23 dBm \pm 1 dB

Technology: GSM / GPRS / EDGE

Bands	Frequencies	Conducted Transmit Power
GSM 850 (850 MHz)	Tx: 824-849 MHz	+32 dBm \pm 1 dB

	Rx: 869–894 MHz	+27 dBm ± 1 dB
EGSM 900 (900 MHz)	Tx: 880–915 MHz	+32 dBm ± 1 dB
	Rx: 925–960 MHz	+27 dBm ± 1 dB
DCS 1800 (1800 MHz)	Tx: 1710–1785 MHz	+29 dBm ± 1 dB
	Rx: 1805–1880 MHz	+26 dBm ± 1 dB
PCS 1900 (1900 MHz)	Tx: 1850–1910 MHz	+29 dBm ± 1 dB
	Rx: 1930–1990 MHz	+26 dBm ± 1 dB

B.2 RF GSM/WCDMA Specifications

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

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

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

Bands	Frequencies	Conducted Transmit Power
Band 1	Tx: 1920-1980 MHz	+23 dBm ± 1 dB
	Rx: 2110-2170 MHz	
Band 2	Tx: 1850–1910 MHz	+23 dBm ± 1 dB
	Rx: 1930–1990 MHz	
Band 5	Tx: 824–849 MHz	+23 dBm ± 1 dB
	Rx: 869–894 MHz	
Band 6	Tx: 830–840 MHz	+23 dBm ± 1 dB
	Rx: 875–885 MHz	
Band 8	Tx: 880–915 MHz	+23 dBm ± 1 dB
	Rx: 925–960 MHz	

Technology: GSM / GPRS / EDGE

Bands	Frequencies	Conducted Transmit Power
GSM 850 (850 MHz)	Tx: 824–849 MHz	+32 dBm ± 1 dB
	Rx: 869–894 MHz	+27 dBm ± 1 dB
EGSM 900 (900 MHz)	Tx: 880–915 MHz	+32 dBm ± 1 dB
	Rx: 925–960 MHz	+27 dBm ± 1 dB
DCS 1800 (1800 MHz)	Tx: 1710–1785 MHz	+29 dBm ± 1 dB
	Rx: 1805–1880 MHz	+26 dBm ± 1 dB
PCS 1900 (1900 MHz)	Tx: 1850–1910 MHz	+29 dBm ± 1 dB

	Rx: 1930–1990 MHz	+26 dBm \pm 1 dB
--	-------------------	--------------------