



## Regesta Smart PRO

### Installation Manual

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# Chapter 1 About This Manual

This is the installation manual for the Regesta Smart PRO 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 Smart PRO** Series.

## 1.2 Who should read this manual?

This manual should be read by the person installing and configuring the Regesta Smart PRO router for the first time. The installer should be familiar with network structures, terms, and concepts.

## 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 help you understand your new device in greater depth.

## 1.4 What is in this manual?

This installation manual contains the following information:

- A description of the available features in the Regesta Smart PRO router.
- Technical specifications.
- Power supply requirements.
- A description of the device LEDs and connectors.
- Troubleshooting.

## 1.5 What is not in this manual?

This manual 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 found on 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. All descriptive and technical specifications, as well as information on a given component, can be found in the relevant chapter.





## 1.7 Risk identification



**WARNING:** Signal word used to designate a potentially dangerous situation that may cause severe injuries or death if not avoided.

## 1.8 Safety Warnings

	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.
	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.
	This equipment must be installed in restricted access locations. Only trained and qualified personnel are allowed to install, replace or service this equipment as instructed in this installation guide.
	Este dispositivo debe ser instalado en lugares de acceso restringido por personal cualificado y entrenado, como se describe en esta guía de instalación.
	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 under " <i>DC-powered device</i> " and " <i>AC-powered device</i> ".
	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 correspondientes.
	This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.
	El equipo podría tener mas de una fuente de alimentación. Asegurese de que todas las conexiones han sido desconectadas cuando apague el equipo.
	The Regesta Smart PRO is a permanently connected Class II device. Pursuant to safety regulations on electrical overloads, the device must be connected to the main power supply through a thermomagnetic circuit breaker of 1 A min and CE marking.
	Regesta Smart PRO es un equipo de Clase II permanentemente conectado. Para cumplir con las normas de seguridad eléctrica en materia de sobrecargas, este equipo deberá conectarse a la fuente de alimentación a través de un interruptor magnetotérmico de 1 A que cuente con marcado CE.
	The power cable is not supplied with the router. The estimated peak consumption for 230V AC operation is of 100 mA. Any cable with a cable gauge greater than, or equal to, a 0.75 mm <sup>2</sup> section (AWG18 conductor) and approved by IEC 60227 is acceptable.
	El cable de alimentación no se suministra con el router. El consumo máximo a 230V AC es de, aproximadamente, 100 mA. Cualquier cable con una sección mayor o igual a 0,75 mm <sup>2</sup> (AWG 18) y aprobado por la IEC 60227 es válido.

	<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>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>Laser Radiation. Do not use optical instruments directly or without proper protection. CLASS 1 LASER PRODUCT.</p> <p>The SFP modules to be installed in the card socket should be class 1 devices that comply with the IEC/EN 60825-1:2007 standard.</p>
	<p>Radiación laser. No mirar directamente con instrumentos ópticos. Producto LASER CLASE 1.</p> <p>Los módulos SFP que se instalen en el socket de la tarjeta deben ser dispositivos de CLASE 1 de acuerdo con la norma IEC/EN 60825-1:2007.</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>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 screws must go into a wall stud (wood) or a wall anchor of the appropriate type for the wall. Screws into drywall are not strong enough to mount the router.</p>
	<p>Los tornillos deben ir atornillados en un taco de pared (de madera) o del tipo adecuado según la clase de pared. Los tornillos que se montan directamente en los paneles de yeso no son lo bastante resistentes para soportar el router.</p>



## 1.9 Related Documentation

Teldat Dm709-I *LAN Interfaces*

Teldat Dm781-I *Cellular Interface*

Teldat Dm748-I *Software Updating*

## 1.10 Technical Support

Contact information:

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

Tel.: +34 918 076 565

Fax: +34 918 076 566

Email: [support@teldat.com](mailto:support@teldat.com)

## Chapter 2 Product Overview

This chapter provides an overview of the features available for Regesta Smart PRO routers and its components. This information includes:

- *General Description* on page 5
- *Device Models* on page 6
- *Hardware Features* on page 7
- *Components* on page 8
- *Power Supply* on page 12

### 2.1 General Description

The Regesta Smart PRO router family are industrial-grade routers that provide secure and reliable IP broadband connectivity to telecontrol and telemetry networks in smart grid deployments.

The Regesta Smart PRO router family has been especially designed to operate in hostile and extreme environments. Thanks to their ruggedized mechanics and special characteristics, which allow them to bear extreme temperatures, these routers are particularly suited for: industrial environments, industrial telecontrol, distribution installations for electricity, gas, water, etc.

The router guarantees optimal execution and maximum security of communications between multiple IP services. In addition, the simultaneous use of 2G/3G/LTE interfaces and WAN Ethernet links provides maximum communications reliability, which is ensured thanks to the full support of the management, supervision and backup functionalities.

The device incorporates a protective casing that prevents the connectors from being touched while the device is powered.

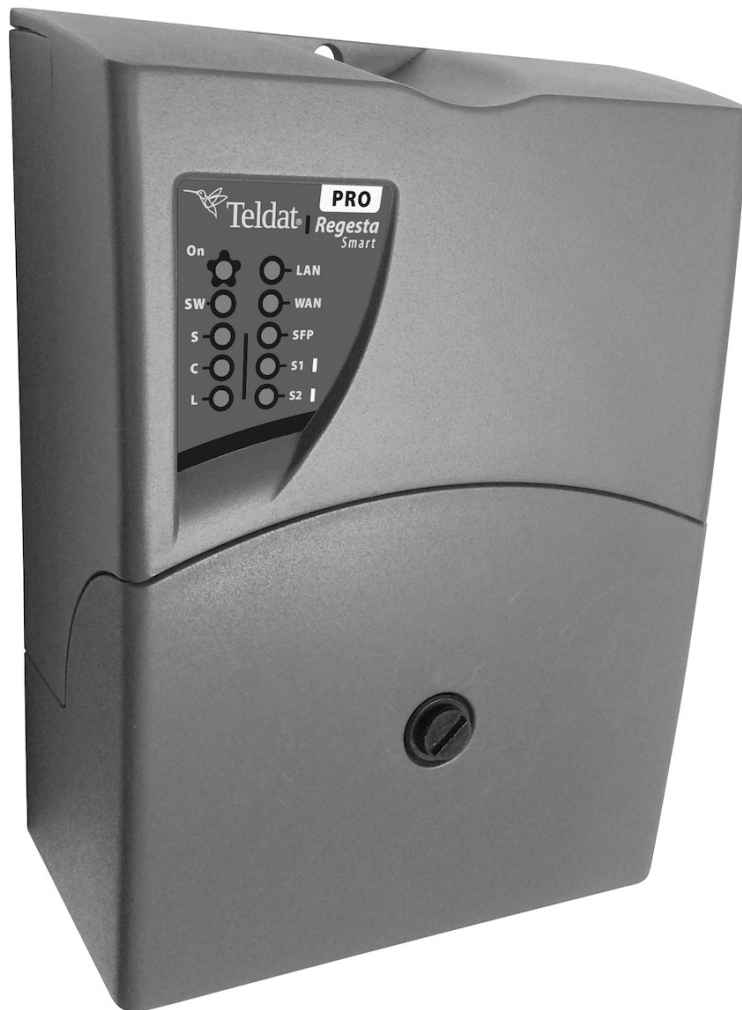


Fig. 2: Regesta Smart PRO

## 2.2 Device Models

The following table lists the different models available for the Regesta Smart PRO router.

**Table 1: Regesta Smart PRO models**

Code	Description
RWRTHR2ZAC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1 RS232, AC powered (110 - 240 VAC).
RWRTHR2ZDC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1 RS232, DC powered (12 - 72 VDC).
RWRTHR2ZMR	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1 RS232, MultiRange power input (48 - 72 VDC, 110 - 240 VAC).
RWRTHR6ZAC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, AC powered (110 - 240 VAC).
RWRTHR6ZDC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, DC powered (12 - 72 VDC).
RWRTHR6ZMR	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, MultiRange power input (48 - 72 VDC, 110 - 240 VAC).
RWRTHR2LAC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1

	RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), AC powered (110 - 240 VAC).
RWRTHR2LDC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1 RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), DC powered (12 - 72 VDC).
RWRTHR2LMR	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 1 RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), MultiRange power input (48 - 72 VDC, 110 - 240 VAC).
RWRTHR6LAC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), AC powered (110 - 240 VAC).
RWRTHR6LDC	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), DC powered (12 - 72 VDC).
RWRTHR6LMR	Regesta Smart PRO 1 LAN Gigabit Ethernet port, 1 WAN Combo Gigabit Ethernet port, 4xPort Gigabit Ethernet Switch, 1 RS232, 1xWWAN (Bands: LTE 1, 3, 5, 7, 8, 20, 38, 40, 41 - WCDMA 1, 5, 8), MultiRange power input (48 - 72 VDC, 110 - 240 VAC).

## 2.3 Hardware Features

The following lists the hardware platform features for Regesta Smart PRO router.

- External Power Input:
  - Terminal Block 2 Poles 5.08 mm pitch connector.
  - AC Version ("AC" models)
    - Nominal: 110 - 240 VAC
    - Absolute: 85 - 264 VAC
    - Frequency : 50 - 60 Hz
    - Power: 10 W
  - DC Version ("DC" models)
    - Nominal: 12 - 72 VDC
    - Absolute: 9 - 80 VDC
    - Power: 10 W
  - MR Version ("MR" models)
    - Nominal: 110 - 240 VAC, 48 - 72 VDC
    - Absolute: 85 - 264 VAC, 40 - 85 VDC
    - Frequency : 50 - 60 Hz (VAC)
    - Power: 10 W
- LAN: RJ45 connector will support IEEE802.3 Ethernet over copper wiring standards of 10Base-T, 100Base-TX, and 1000Base-T
- WAN: Gigabit Ethernet Combo RJ45+SFP connector:
  - RJ45 connector will support IEEE802.3 Ethernet over copper wiring standards of 10Base-T, 100Base-TX, and 1000Base-T.
  - SFP port will support 1000Base-X Fiber Ethernet standard SFP.
- Switch: Depending on the model. ("6" Models)
  - 4xRJ45 connectors will support IEEE802.3 Ethernet over copper wiring standards of 10Base-T, 100Base-TX, and 1000Base-T.

- Serial Ports.
  - 1xRJ45 connector RS-232 port (DCE).
  - 2xRJ45 connectors for RS-232 port (DCE) and/or RS-485 (2/4 wires). Its availability requires one additional accessory.
- WWAN: Depending on the model. ("L" models)
  - 1xLTE Category 4 WWAN module with two SMA connectors.
  - 2 Internal SIM trays with 2FF form factor.
- External Reset/Recovery push button

## 2.4 Components

### 2.4.1 Front Panel

The front panel includes the status LEDs.

The following figure shows the front panel.



Fig. 3: Front Panel

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

Table 2: LEDs

LED	Associated Interface	Status	Description
ON	Power	Off	Device is not powered.
		Green	Device is powered.
SW	Ethernet Switch interface	Off	Ethernet Switch is disabled or connection is not established.
		Green	Ethernet connection (link) established in, at least, one port: <ul style="list-style-type: none"> <li>• Steady: Data is not being transferred.</li> <li>• Flashing: Data is being transferred.</li> </ul>
S	Cellular interface	Green	SIM1 operating SIM. This is processing traffic through the carrier for the SIM installed in this tray.
		Amber	SIM2 operating SIM. This is processing 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 establishing the PDP connection.
		Green	The device is registered, PDP connection is established and IP traffic can be sent through the CELLULAR interface. <ul style="list-style-type: none"> <li>Steady: Data is not being transferred.</li> <li>Flashing: Data is being transferred.</li> </ul>
L	Cellular interface corresponding to the active SIM.	Off	Cellular interface is not active.
		Red	Coverage level below -100dBm.
		Amber	Coverage level between -90dBm and -100dBm.
		Green	Coverage level above -90dBm.
LAN	Ethernet LAN interface	Off	Ethernet LAN is disabled or connection is not established.
		Green	Ethernet connection (link) established: <ul style="list-style-type: none"> <li>Steady: Data is not being transferred.</li> <li>Flashing: Data is being transferred.</li> </ul>
WAN	Ethernet WAN interface (RJ45)	Off	Ethernet WAN is disabled or connection is not established.
		Green	Ethernet connection (link) established: <ul style="list-style-type: none"> <li>Steady: Data is not being transferred.</li> <li>Flashing: Data is being transferred.</li> </ul>
SFP	Ethernet WAN interface (SFP)	Off	SFP is not used.
		Green	Ethernet SFP connection (link) is established
S1	Multi standard serial interface 1	Off	Serial port 1 is disabled or not initialized.
		Green	Port is in active state, shows interface activity: <ul style="list-style-type: none"> <li>Steady: Data is not being transferred.</li> <li>Flashing: Data is being transferred.</li> </ul>
S2	Multi standard serial interface 2	Off	Serial port 2 is disabled or not initialized.
		Green	Port is in active state, shows interface activity: <ul style="list-style-type: none"> <li>Steady: Data is not being transferred.</li> <li>Flashing: Data is being transferred.</li> </ul>

Note some LEDs may behave differently depending on how the device is configured.

## 2.4.2 Connector Panel

The connector panel is covered by a protective casing. To access the former, you need to remove the latter. For further information on how to remove/install the protective casing, please see [Removing/Installing the Connectors Protector](#) on page 14.

The following figure shows the panel, which includes all Regesta Smart PRO router connectors.



Fig. 4: Connector Panel

The elements found in the connector panel are as follows:

**Table 1: Front Panel Elements**

Item	Description
A	RST. Reset button. For further information on how the reset button works, please see <a href="#">RST Button</a> on page 28.
B	CONF. RJ-45 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.)  For more information about the CONF connector, refer to: <ul style="list-style-type: none"> <li>- <a href="#">Console Connector as Serial Port (CONF connector)</a> on page 25</li> <li>- <a href="#">Configuration Connector</a> on page 35</li> <li>- <a href="#">Configuration Interface</a> on page 38</li> </ul>
C	WAN Gigabit Ethernet. SFP connector.  For more information about the WAN interface with SFP connector, refer to: <ul style="list-style-type: none"> <li>- <a href="#">WAN connections</a> on page 21</li> <li>- <a href="#">WAN SFP Connector</a> on page 34</li> <li>- <a href="#">WAN SFP Interface</a> on page 37</li> </ul>
D	WAN Gigabit Ethernet. RJ-45 connector.  For more information about the WAN interface with Base-T connector, refer to: <ul style="list-style-type: none"> <li>- <a href="#">WAN connections</a> on page 21</li> <li>- <a href="#">WAN Base-T Connector</a> on page 34</li> <li>- <a href="#">WAN Base-T Interface</a> on page 37</li> </ul>
E	LAN Gigabit Ethernet Port.

	<p>For more information about the LAN interface, refer to:</p> <ul style="list-style-type: none"> <li>- <a href="#">LAN connection</a> on page 21</li> <li>- <a href="#">LAN Connector</a> on page 34</li> <li>- <a href="#">LAN Interface</a> on page 37</li> </ul>
F	<p>POWER. Power connection.</p> <p>Depending on the model, the Regesta Smart PRO can be AC or DC powered.</p> <p>For more information about the power connection options, refer to:</p> <ul style="list-style-type: none"> <li>- <a href="#">Power Source</a> on page 19.</li> <li>- <a href="#">Power Supply Specifications</a> on page 39</li> </ul>
G	<p>4xPort Gigabit Ethernet Switch. (Depending on the model)</p> <p>For more information about the LAN interface, refer to:</p> <ul style="list-style-type: none"> <li>- <a href="#">4-port Ethernet Switch connections</a> on page 22</li> <li>- <a href="#">LAN Switch Connector</a> on page 35</li> <li>- <a href="#">Switch Interface</a> on page 37</li> </ul>
H	<p>DCE RS-232 serial ports or RS-485 2-4 wires/RS-422.</p> <p>The type of configuration of each port depends on the hardware configuration of the device (model).</p> <p>For more information on the connector for serial ports, RS-485 2-4 wires/RS-422 and DCE RS-232, refer to:</p> <p>RS232 option:</p> <ul style="list-style-type: none"> <li>- <a href="#">RS-232 Serial Port</a> on page 26</li> <li>- <a href="#">RS-232 Serial Port Connectors</a> on page 36</li> <li>- <a href="#">RS-232 Serial Interface</a> on page 38</li> </ul> <p>RS485 option</p> <ul style="list-style-type: none"> <li>- <a href="#">RS-485/RS-422 Serial Port</a> on page 26</li> <li>- <a href="#">RS-485 Serial Port Connectors</a> on page 36</li> <li>- <a href="#">RS-485 Serial Interface</a> on page 38</li> </ul>
I	<p>RF/WWAN antenna connectors for the Cellular interface, based on the model.</p> <p>For more information about the Cellular interface, refer to:</p> <ul style="list-style-type: none"> <li>- <a href="#">WWAN Antenna connections (RF connectors)</a> on page 23</li> <li>- <a href="#">WWAN/RF Connectors</a> on page 35</li> <li>- <a href="#">Wireless WAN interface</a> on page 38</li> </ul> <p>Refer to <a href="#">Installing the SIM card</a> on page 26 for more information about SIM installation for the Cellular interface.</p>



### 2.4.3 Underside Panel

The router identification label is located on the underside panel. It has several perforations for different mounting options. The following figure shows the underside panel:

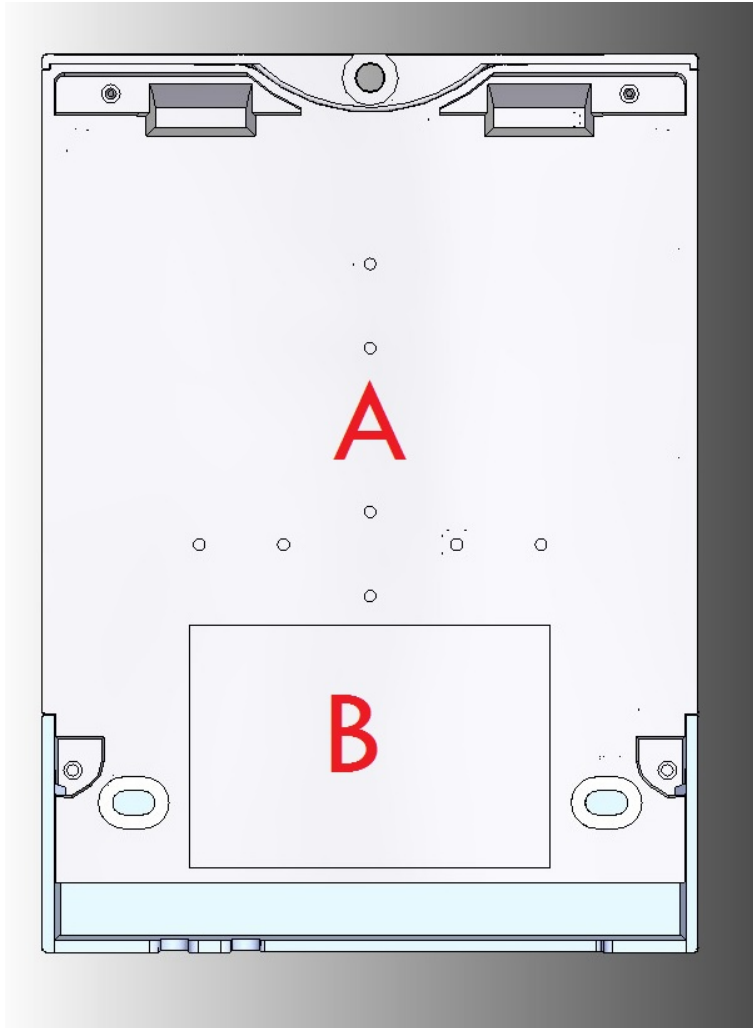


Fig. 5: Underside Panel

The following elements can be found on the underside panel:

**Table 4: Underside Panel elements table**

Item	Description
A	Slots for the accessories to attach the device to a DIN rail mount. For further information on this accessory, please see section <a href="#">Wall mounting</a> on page 17.
B	Platform where the label containing product information is placed. This label contains information on the device model, MAC, serial number, etc.

## 2.5 Power Supply

Depending on the model, the Regesta Smart PRO offers three different Power Supply options.

### Note

Before connecting the router, please, identify your model and read the following instructions carefully!

### **2.5.1 AC Power Supply**

The Regesta Smart PRO AC version is powered with an external AC source. Nominal power voltages are 110-240 V AC.

### **2.5.2 DC Power Supply**

The Regesta Smart PRO DC version is powered with an external DC source. Nominal power voltages are 12-72 V DC.

### **2.5.3 Multi-Range (MR) Power Supply**

The Regesta Smart PRO MR version can be powered using both DC and AC voltages. The nominal power voltages are 110-240 V AC and 48 V DC.

## Chapter 3 Installing the Router

This chapter describes the steps to successfully install the Regesta Smart PRO router. It contains the following sections:

- [Workplace Conditions](#) on page 14
- [Removing/Installing the Connectors Protector](#) on page 14
- [Installing a DIN rail mount accessory](#) on page 16
- [Wall mounting](#) on page 17

### 3.1 Workplace Conditions

**Warning**

This equipment must be installed in restricted access locations. Only trained and qualified personnel are allowed to install, replace or service this equipment as instructed in this installation guide.

- 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 [Connecting](#) on page 21 and [Disconnecting](#) on page 21.

### 3.2 Removing/Installing the Connectors Protector

The Regesta Smart PRO includes a protective case for connectors. Its main function is to prevent accidental electrical discharges, which can prove dangerous. Thanks to the casing, direct contact with connectors is avoided while the device is operating.

**Warning**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

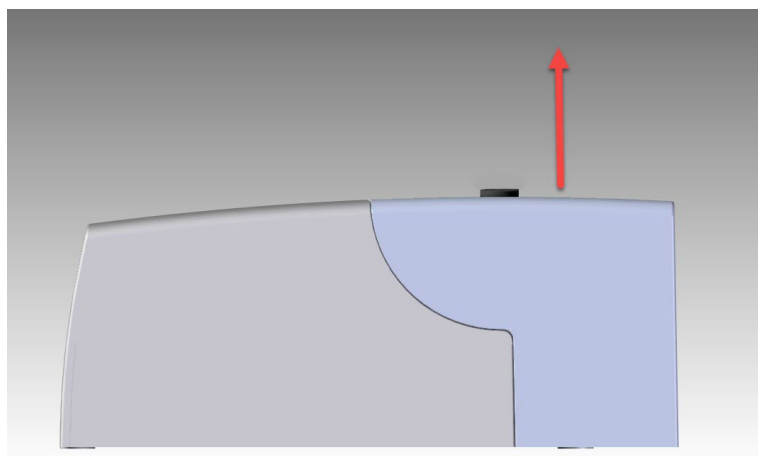
To remove the case that protects the connectors, follow these steps:

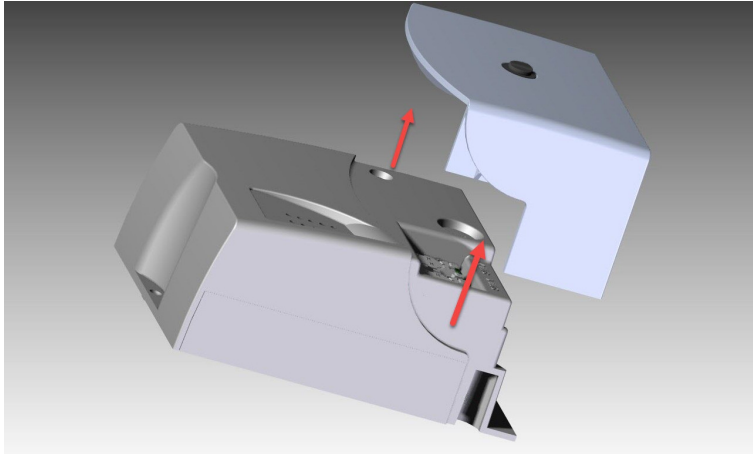
In the middle of the front panel you will find a fastening mechanism. To remove the casing, rotate the fastening piece 90° to the right or left.

The following figure shows you how to remove the protective case from the device.



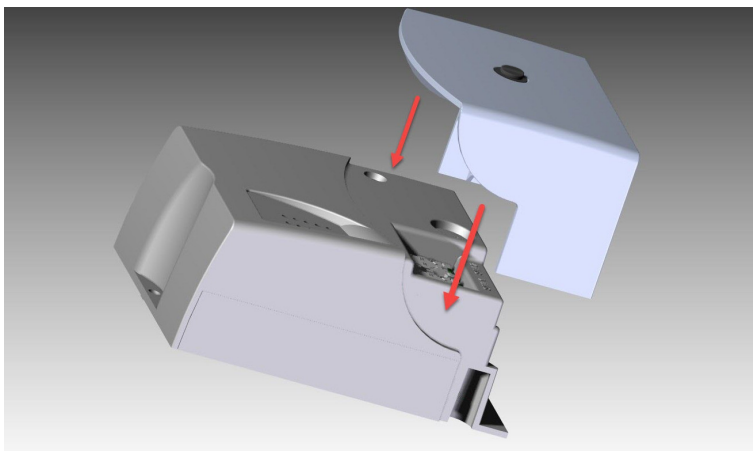
Slide up the case as shown:





To put the protector on, follow the steps below.

First, slide the case down and insert it in its proper position.



To block the case, move the fastening mechanism to a horizontal position and push down. You should hear a little click.



#### Warning

The connector's protection case needs to be installed before the device is powered.

### 3.3 Installing a DIN rail mount accessory

The Regesta Smart PRO can be installed on a standard DIN rail. To mount it on a DIN rail, a special kit is needed. This kit is included in the delivery. The DIN rail kit allows the device to be installed in different positions.

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

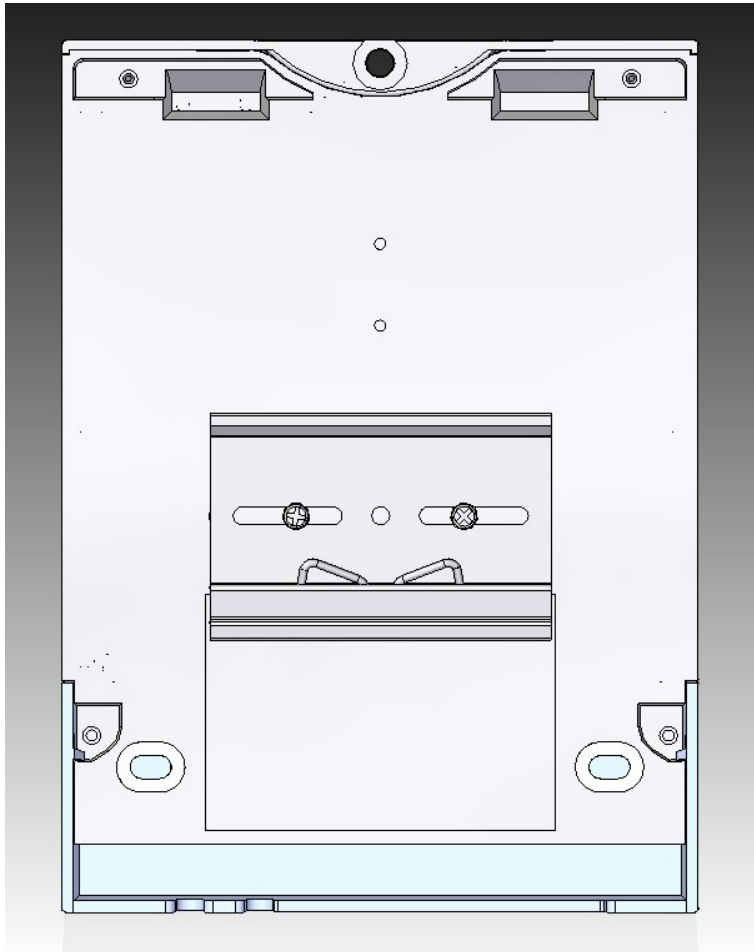


Fig. 11: DIN rail mount: Position 1

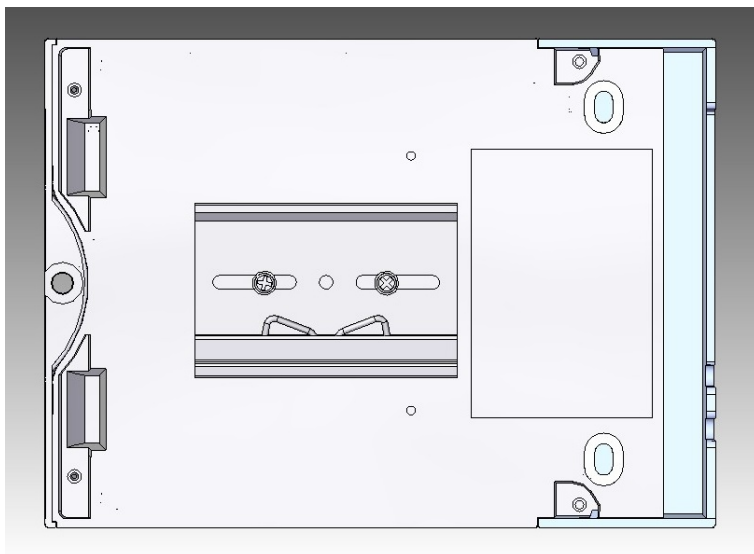


Fig. 12: DIN rail mount: Position 2

### 3.4 Wall mounting

The Regesta Smart PRO can be attached to a wall, thanks to the 3 perforations. To ensure it is properly fastened, screws must be installed in said holes. Before mounting the device on the wall, remove the protective casing.

The following image shows where the fastening perforations are located:

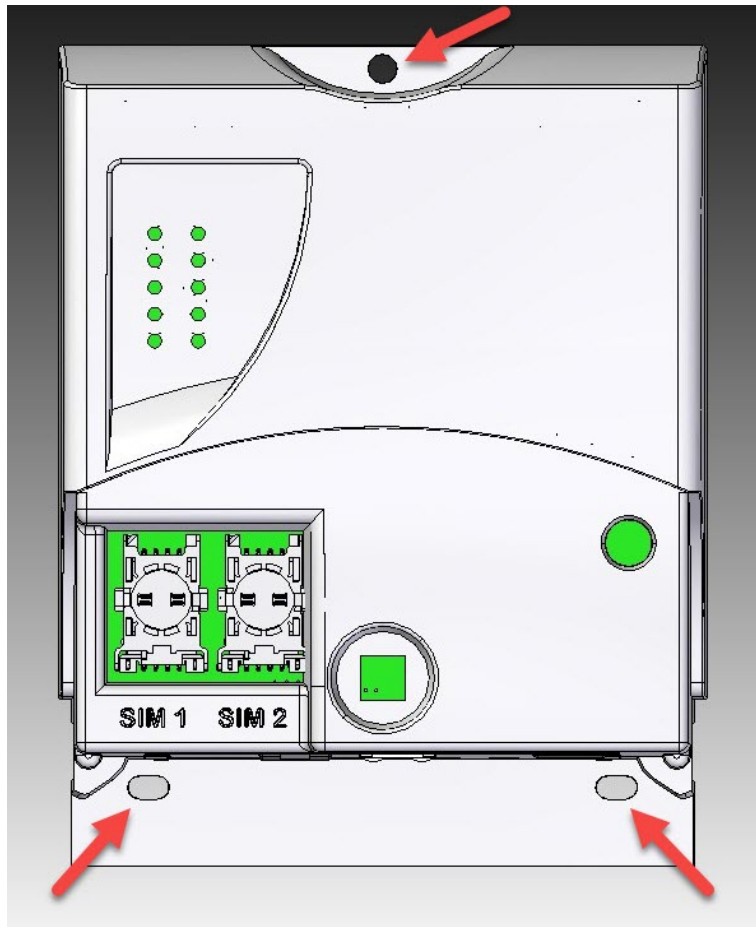


Fig. 13: Perforations for wall mounting.

## Chapter 4 Connecting the router

This chapter describes how to connect the Regesta Smart PRO router to Ethernet devices and networks. This chapter contains the following sections:

- [Power Source](#) on page 19
- [Data connections](#) on page 21
- [Installing the SIM card](#) on page 26
- [RST Button](#) on page 28
- [Troubleshooting](#) on page 28
- [Updating the software](#) on page 29

### 4.1 Power Source



#### Note

Please read the following instructions carefully before connecting the router!

#### 4.1.1 Power Connector pins

The power connector is located in the connector panel.



Fig. 14: Power Supply Connector

Depending on the model, the Regesta Smart PRO can be DC or AC-powered.



#### Note

Please check that the device's power input is compatible with your power supply.

The power connector on this router is a **2-wire terminal block 5.08 mm pitch**.

The connector has 2 terminals for both AC (AC version or AC-powered MR version) and DC powering (DC version or DC-powered MR version).



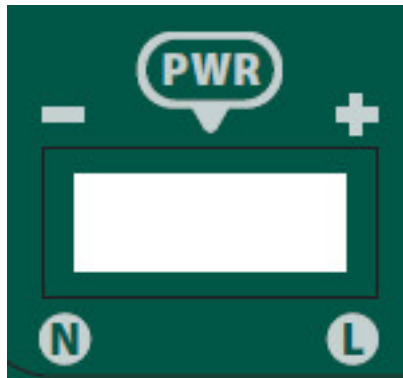


Fig. 15: Power Supply Connector detail

#### 4.1.1.1 DC-powered device

PIN	Signal
-	- V DC
+	+ V DC

#### 4.1.1.2 AC-powered device

PIN	Signal
N	Neutral
L	Phase

### 4.1.2 Power Connector cable



#### Warning

The power cable is not supplied with the router. The estimated peak consumption for 230V AC operation is of 100 mA. Any cable with a gauge greater than, or equal to, a 0.75 mm<sup>2</sup> section (AWG18 conductor) and approved by IEC 60227 is acceptable.



#### Warning

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.

### 4.1.3 Connecting

- Make sure 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.
- Install the protection case for connectors.
- Connect the power supply cable to the electricity supply.

### 4.1.4 Disconnecting

- Disconnect the power supply from the electricity supply.
- Remove the protective case.
- Disconnect the power supply from the router.
- Disconnect the data cables.

## 4.2 Data connections

The Regesta Smart PRO has the following data connections.

### 4.2.1 LAN connection

The Regesta Smart PRO incorporates one 10/100/1000 BaseT Gigabit Ethernet port with automatic MDI/MDIX to connect to a local area network (LAN). This interface is totally independent from the switch, if present, and is handled as every other interface.

Please pay careful attention to the labeling to avoid mistaking this port for other types of ports:



Fig. 16: LAN Port

### 4.2.2 WAN connections

The Regesta Smart PRO has one Ethernet COMBO Gigabit interface for WAN connection. This port has 2 connectors - SFP for an optical link and RJ-45 for a 10/100/1000 Base-T link. However, they cannot work simultaneously. This interface is totally independent from the switch (if present) and is managed like every other interface.

Please pay careful attention to the labeling to avoid mistaking this port for other types of ports:



Fig. 17: WAN and SFP connectors

#### 4.2.2.1 Laser information



Choose SFP transceivers that meet the following regulations

- Class 1
- IEC/EN60825-1:2007 2nd Edition or a later one, European standard
- FCC 21 CFR Chapter 1, Subchapter J (in accordance with FDA and CDRH requirements)
- Application of CE marking in accordance with the 2014/30/EU EMC Directive and the 2014/35/EU Low Voltage Directive
- UL and/or CSA registered component for North America
- 47 CFR Part 15, Class A



#### Warning

Laser Radiation. Do not use optical instruments directly or without proper protection. CLASS 1 LASER PRODUCT.

The SFP modules to be installed in the card socket should be class 1 devices that comply with the IEC/EN 60825-1:2007 standard.

#### 4.2.3 4-port Ethernet Switch connections

Some of the Regesta Smart PRO router models incorporate a 4-port 10/100/1000 Base-T switch with automatic MDI/MDIX to connect to a local area network (LAN).

Please pay careful attention to the labeling to avoid mistaking this switch for other types of ports:

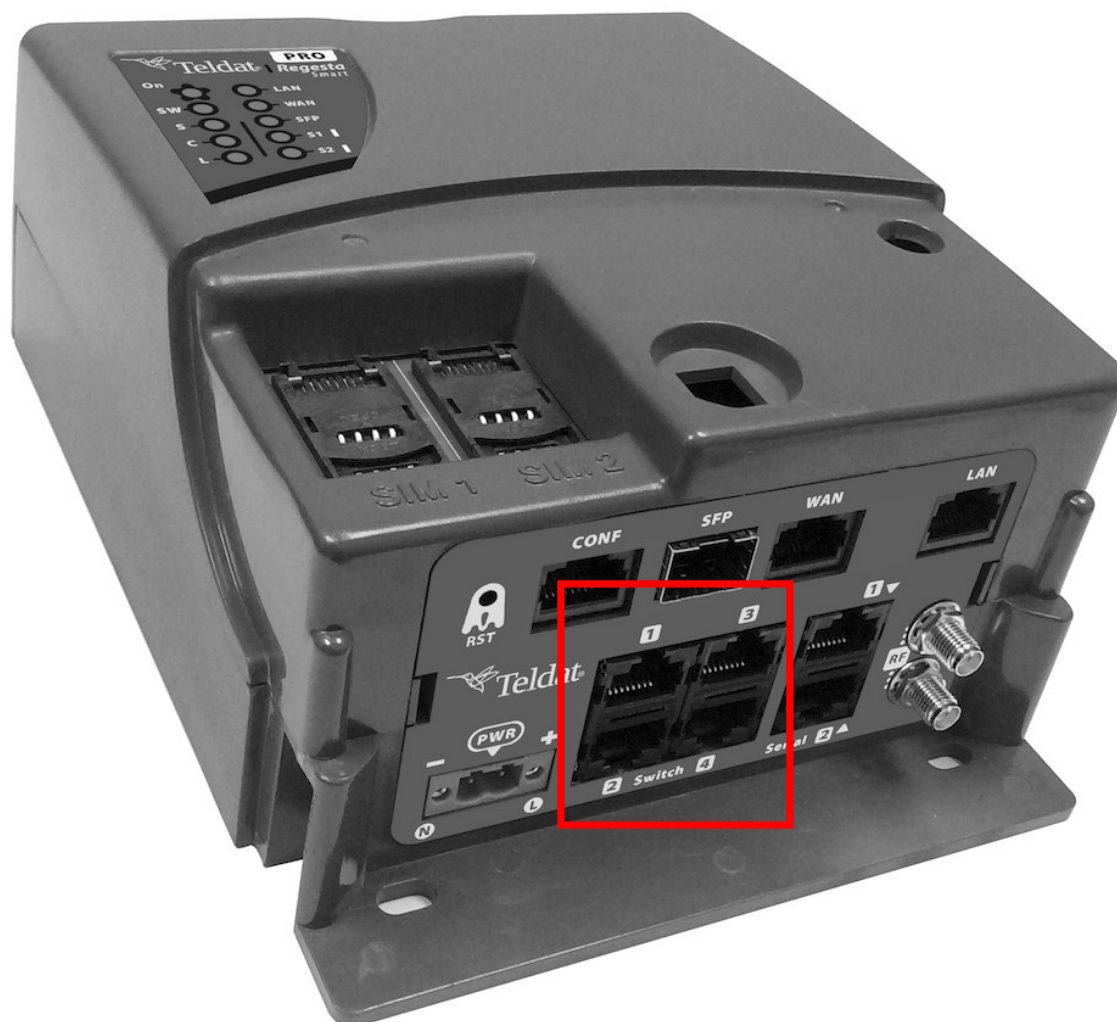


Fig. 19: LAN switch ports

#### 4.2.4 WWAN Antenna connections (RF connectors)

Some Regesta Smart PRO router models have two RF antennas connectors. The antennas are assembled and dismantled by screwing/unscrewing them into/from the connectors labeled RF1/RF2 (located on the connector panel of the device).

The RF1 connector is connected to the module's MAIN connector, while the RF2 connector is linked to the AUX connector.

Using these antennas in the Regesta Smart PRO router improves the quality of the signal received and transmitted by the WWAN module.

Some cellular technologies use the antenna diversity technique to improve the quality of the signal received (HSUPA, LTE, etc.). For this reason, the Regesta Smart PRO incorporates two WWAN/RF connectors. Regardless of the configuration, the antenna on RF1 must always be installed while the RF2 one is optional.



Fig. 20: **WWAN Antenna Connectors**

If the RF1 and RF2 antennas are connected via extension cables rather than being screwed into the router, the minimum distance between them must be 7 cm. The maximum recommended distance between the two antennas is 25 cm. In order to comply with EMC regulations, the extension cable must not be longer than 3 m.

To achieve optimum performance, any radio frequency accessories installed (antennas and cables) should be those recommended by Teldat.

Teldat offers a series of accessories (90° mount antennas, antennas for outdoor installation, antennas for ceiling installation, extension cables, etc.) that allow you to install the devices in different locations.

#### 4.2.4.1 Placing the Antenna

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

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

For optimum 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 facing the nearest base station.
- Density of materials also affects antennas. Place them away from any type of wall, metal screens, mirrors, etc.
- Do not place the antenna near columns, which may throw shadows and reduce the coverage area.
- 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 radio signal.
- We do not recommend installing antennas near, or between, racks containing communication devices, computers, etc. Use an extension cable and place the device outside.

The following recommendations are applicable to all wireless devices:

- Do not touch or move the antenna while the device is transmitting or receiving.
- Do not touch any equipment containing devices that radiate, where the antenna is very close to or touching any exposed part of the body (particularly the face and eyes), when it is transmitting.
- Do not install the device in areas where the atmosphere is potentially explosive.

- Wireless devices can cause interference with other devices. Do not use the device in areas where medical equipment is installed.
- To ensure the RED 2014/53/EU directive is complied with, the device must be at least 20 cm away from a person's body when operating.

## 4.2.5 Serial Ports connections

The Regesta Smart PRO includes three RJ45 connectors to provide serial ports. Depending on the model, the two RJ45 connectors (labeled "Serial") may be inoperative.

### 4.2.5.1 Console Connector as Serial Port (CONF connector)

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

- (1) DCE port.
- (2) RS-232 norm.
- (3) Maximum speed of 115200 bps.
- (4) Only the following signals are available: RxD, TxD and GND. See [Configuration Connector](#) on page 35 for more information about pin assignment.
- (5) RJ45 connector.



Fig. 21: Console connector

### 4.2.5.2 Asynchronous Serial Ports

The Asynchronous Serial Ports feature is optional and requires the addition of some hardware elements. Some models are equipped with 2 additional serial ports. The Regesta Smart PRO includes two RJ-45 connectors to provide these serial ports, although they might not work in some models. Check the label to verify whether the device offers serial ports or not, as well as to obtain information on their type.



Fig. 22: **Asynchronous Serial connectors**

These serial ports can be RS-232 and/or RS-485/RS-422. They have the following characteristics:

#### 4.2.5.2.1 RS-232 Serial Port

- (1) DCE port.
- (2) Maximum speed of 115200 bps.
- (3) Control signals available. See [RS-232 Serial Port Connectors](#) on page 36 for more information about pin assignment.
- (4) RJ-45 connector.

#### 4.2.5.2.2 RS-485/RS-422 Serial Port

- (1) 2/4 wires configurable via software.
- (2) Bus termination configurable via software. See [RS-485 Serial Port Connectors](#) on page 36 for more information about pin assignment.
- (3) Maximum speed of 115200 bps.
- (4) RJ-45 connector.

## 4.3 Installing the SIM card

The Regesta Smart PRO has a Wireless WAN interface 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 operators in some countries that do not require SIM cards.

The Regesta Smart PRO has two SIM trays. Both trays are located under the device's protective case and are labeled SIM1 and SIM2.

In installations where only one SIM card is required, we recommend installing it in the SIM1 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 connectors protective casing to access the trays.

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

Do not touch the SIM card connectors.

To access the SIM trays, you need to remove the protective case. Please refer to [Removing/Installing the Connectors Protector](#) on page 14 to learn how to remove the casing.

### 4.3.1 Identifying the SIM trays

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

The Regesta Smart PRO incorporates 2 SIM cards, which allow you to execute some special configurations. For example, when installing two SIM cards one can be used as backup. 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 SIM1 and SIM2 (i.e.socket 1 and socket 2).



Fig. 23: Location of the SIM1 and SIM2 trays

### 4.3.2 Procedure to install the SIM

Once the appropriate SIM is selected, carry out the following steps:

- (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; the SIM's notch must be on the right (as shown).
- (4) Return the tray to its original position.
- (5) While pressing on the tray, push the fastening towards the word *LOCK* until it is firmly in place.



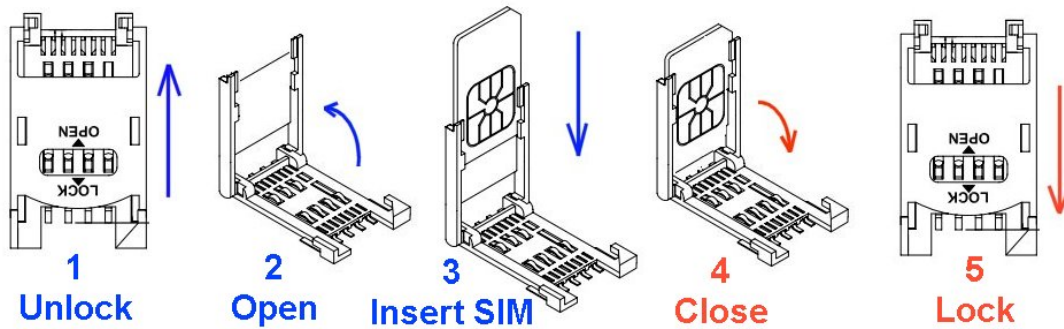


Fig. 24: Inserting the SIM in the internal tray

## 4.4 RST Button

The Regesta Smart PRO has a button that can be accessed from the outside and is labeled “RST”. It is located on the connector panel and has two functions.

- To trigger a reboot.
- 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 to stop it from being accidentally pushed. You need a sharp-pointed object to activate it.

### 4.4.1 Restarting the device

Carry out the following steps to restart the device:

- (1) Press the RST button. The device restarts with the S,C and L LEDs in the *off* state and the ON LED lighting in green.
- (2) Stop pressing the RST button as soon as the S, C and L LEDs switch to the *off* state.
- (3) The device will restart with LEDs S and C in the *off* state and LEDs L and ON in green.

### 4.4.2 Default Configuration

By following these steps, the RST button allows you to boot the device with its default configuration:

- (1) Press the RST button. The device restarts with the S,C and L LEDs in the *off* state and the ON LED lights up in green.
- (2) Keep pressing the RST button while the S LED flashes in green and the L LED lights up in green. This indicates 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 restart with LEDs S and C in the *off* state and LEDs L and ON 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).

## 4.5 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
No LED lights up on the router.	Check the power supply to the router (power source, main power outlet).
The local console does not respond.	Check the console cable is the right one and that it is connected to the device and the asynchronous terminal.

	<p>Check the terminal has the correct port configured.</p> <p>Check the terminal configuration is 115200 8N1.</p> <p>Check the console is not an events process.</p>
The local console only displays rubbish.	<p>Check the terminal has the correct port configured.</p> <p>Check the terminal configuration is 115200 8N1.</p>
You have forgotten the access password for the router.	Ignore the configuration through the RST button (as explained in the relevant section).
Date and time in the device are lost when restarted.	Parameters configured through the time set command will be lost when the device restarts. Use the NTP protocol to keep the date and time configuration.
The LAN, WAN, SFP or SW LEDs do not light up in green.	<p>Check the Ethernet cable, or Fiber, and the connection to the network (you may need a crossover cable).</p> <p>For further information, please see manual: "Teldat <i>Dm709-I LAN Interfaces</i>".</p>
The S LED is red.	<p>Check the SIM card has been inserted correctly,</p> <p>or</p> <p>Check the SIM PIN is correct,</p> <p>or</p> <p>Check the antenna is properly installed (been screwed in correctly),</p> <p>or</p> <p>Get your technical service to check the device is in the optimum position for the service.</p> <p>For further information, please see manual: "Teldat <i>Dm781-I Cellular Interface</i>".</p>

## 4.6 Updating the software

The Regesta Smart PRO router can be updated to new releases. Please contact your distributor for further details on new releases.

There are various ways to update one of our routers. For further information, please see manual *Dm 748-I Software Updating*.

The software required to update one of our 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 their content.

The Regesta Smart PRO 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 software. There is an UPGRADE file for each Wireless WAN module. Please ask you distributor for the correct UPGRADE file (based on the module in your device). The Cellular interface manual (Dm781-I) explains how to upgrade the module.

### 4.6.1 Connecting to the router

There are two ways of accessing the device CLI:

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

#### 4.6.1.1 Connecting through the local console (CONF connector)

The Regesta Smart PRO has a RJ.45 female connector on the front panel known as CONF., which provides access to the device's local console. To configure this, connect the CONF. port to an asynchronous terminal (or to a PC with terminal emulation).

- Speed: 115200 bps.
- Eight data bits.
- One stop bit.
- No parity bit.
- No type of flow control.

To connect to the configuration port, use the RJ45 cable (provided with the router) and the female RJ45-female DB9 adapter (also provided with the router). If the terminal has DB25 connectors, an additional adapter will be needed.

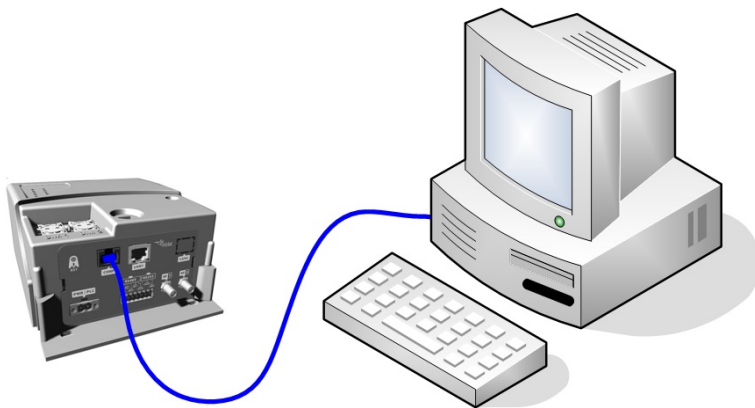


Fig. 25: **Connecting for configuration**

#### 4.6.1.2 Connecting through an IP terminal (LAN connector)

The Regesta Smart PRO includes a default configuration that activates if you haven't preconfigured anything.

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's configuration console through the Telnet IP protocol. To do this, carry out the following steps:

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

## 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>	Isaac Newton, 10 Parque Tecnológico de Madrid, 28760 Tres Cantos, Madrid, Spain
<i>International Phone</i>	+34 91 807 65 65

### 5.2 Intended use of the equipment

The Regesta Smart PRO is an industrial router. Operation of this equipment in a residential environment could cause radio interference.

### 5.3 EC Declaration of Conformity (No Radio version)

English (EN)	<p>Hereby, Teldat S.A. declares that telecommunications equipment Regesta Smart PRO complies with:</p> <p>Directive 2014/30/EU (EMC)</p> <p>Directive 2014/35/EU (LVD)</p> <p>Directives 2011/65/EU and 2015/863/EU (RoHS)</p> <p>of the European Parliament and of the Council.</p>
Spanish (ES) Español	<p>Por la presente, Teldat S.A. declara que el tipo de equipo de telecomunicaciones Regesta Smart PRO es conforme con:</p> <p>Directiva 2014/30/UE (EMC)</p> <p>Directiva 2014/35/UE (LVD)</p> <p>Directivas 2011/65/UE y 2015/863/UE (RoHS)</p> <p>del Parlamento Europeo y del Consejo.</p>

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

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

## 5.4 EC Declaration of Conformity (Radio version)

English (EN)	<p>Hereby, Teldat S.A. declares that radio equipment Regesta Smart PRO complies with:</p> <p>Directive 2014/53/EU (RED)</p> <p>Directives 2011/65/EU and 2015/863/EU (RoHS)</p> <p>of the European Parliament and of the Council.</p>
Spanish (ES) Español	<p>Por la presente, Teldat S.A. declara que el tipo de equipo radioeléctrico Regesta Smart PRO es conforme con:</p> <p>Directiva 2014/53/UE (RED)</p> <p>Directivas 2011/65/UE y 2015/863/UE (RoHS)</p> <p>del Parlamento Europeo y del Consejo.</p>

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

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

## 5.5 CE Marking

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



## 5.6 National Restrictions

In accordance with Article 10 of 2014/53/EU, we inform you that national restrictions and requirements may apply when it comes to authorization. These can evolve over time. Teldat S.A. recommends that you check with local authorities what the latest status of national regulations is.

## 5.7 Operating Frequency

To find out more about operating frequencies, see Appendix *Radio Information* on page 40.

## 5.8 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.

## 5.9 WEEE Information

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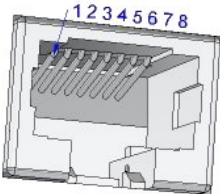
The waste container symbol with the >X< indicates that the device must be disposed of separately from normal domestic waste at an appropriate waste disposal facility at the end of its useful service life.

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.

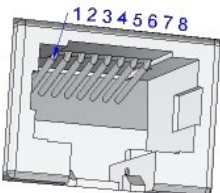
# Appendix A Technical Information

## A.1 Connectors

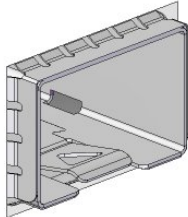
### A.1.1 LAN Connector

RJ45 LAN	RJ45 PIN	FE Signals	GE Signals
	1	BI-DA+	BI-DA+
	2	BI-DA-	BI-DA-
	3	BI-DB+	BI-DB+
	4	--	BI-DC+
	5	--	BI-DC-
	6	BI-DB-	BI-DB-
	7	--	BI-DD+
	8	--	BI-DD-

### A.1.2 WAN Base-T Connector

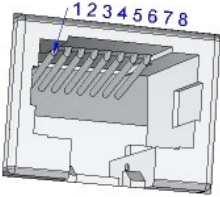
RJ45 WAN	RJ45 PIN	FE Signals	GE Signals
	1	BI-DA+	BI-DA+
	2	BI-DA-	BI-DA-
	3	BI-DB+	BI-DB+
	4	--	BI-DC+
	5	--	BI-DC-
	6	BI-DB-	BI-DB-
	7	--	BI-DD+
	8	--	BI-DD-

### A.1.3 WAN SFP Connector

SFP			
		Standard SFP connector	

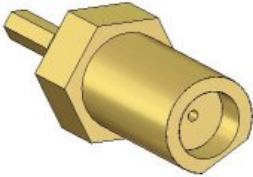
## A.1.4 LAN Switch Connector

Devices equipped with this interface have four RJ45 connectors installed.

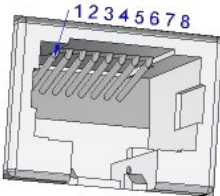
RJ45 LAN	RJ45 PIN	FE Signals	GE Signals
	1	BI-DA+	BI-DA+
	2	BI-DA-	BI-DA-
	3	BI-DB+	BI-DB+
	4	--	BI-DC+
	5	--	BI-DC-
	6	BI-DB-	BI-DB-
	7	--	BI-DD+
	8	--	BI-DD-

## A.1.5 WWAN/RF Connectors

Devices equipped with this interface have two SMA female connectors installed.

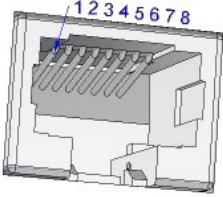
SMA Female	PIN	ANT
	Internal	RF in/out
	External	GND

## A.1.6 Configuration Connector

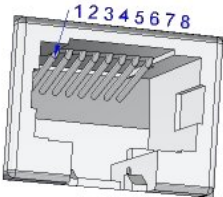
RJ45 CONFIGURATION	PIN	CONF
	1	--
	2	RxD
	3	GND
	4	--
	5	--
	6	GND
	7	TxD
	8	--



### A.1.7 RS-232 Serial Port Connectors

RJ45	PIN	SERIAL
	1	RTS
	2	DTR
	3	TxD
	4	GND
	5	CD
	6	RxD
	7	DSR
	8	CTS

### A.1.8 RS-485 Serial Port Connectors

RJ45	PIN	SERIAL
	2	2H_R/TX-_4H_TX-
	3	2H_R/TX+_4H_TX+
	6	4H_RX+
	7	4H_RX-

### A.1.9 Power Supply Connector

<p><b>2 wires terminal block 5.08 mm pitch</b></p>	<p>- AC-powered version: Phase and Neutral connectors without assignment.</p> <p>- DC-powered version: V+ and V- connectors with polarity.</p>
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## A.2 Technical Specifications

### A.2.1 Hardware Architecture

MEMORY	128 Mbytes in SDRAM.
STORAGE UNIT	FLASH Memory (32 Mbytes).

### A.2.2 LAN Interface

PROTOCOLS	Ethernet (802.3).
PORTS	1 port with MDI/MDX auto-detection.
SPEED	10/100/100 Mbps (BaseT).
CONNECTOR	RJ-45 female.
ISOLATION	Standard for E1 interface (1.5 KV).

### A.2.3 WAN Base-T Interface

STANDARDS	Ethernet (802.3).
PORTS	1 port with MDI/MDX auto-detection.
SPEED	10/100/1000 Mbps (Base-T).
CONNECTOR	RJ-45 female.
ISOLATION	High isolation for E2 (up to 10 KV).

### A.2.4 Switch Interface

PROTOCOLS	Ethernet (802.3).
PORTS	4-port or 2-port switch managed with MDI/MDX auto-detection depending on the model
SPEED	10/100/1000 Mbps (Base-T).
CONNECTOR	RJ-45 female.
ISOLATION	Standard for E1 interface (1.5 KV).

### A.2.5 WAN SFP Interface

STANDARDS	802.1Q (VLAN). 1000-Base-X. MSA and SFF 8472 compliant.
SPEED	1000 Mbps full duplex.
TYPES	LX/LH (single-mode 1310 nm). SX (multi-mode 850 nm). ZX (single-mode 1550 nm).
CONNECTOR	Standard SFP connector.

### A.2.6 Wireless WAN interface

WWAN Standard/Bands	EC25-E: <ul style="list-style-type: none"> <li>• LTE:                             <ul style="list-style-type: none"> <li>• FDD: B1, B3, B5, B7, B8, B20</li> <li>• TDD: B38, B40, B41</li> </ul> </li> <li>• WCDMA: B1, B5, B8</li> <li>• GSM/GPRS/EDGE: 900/1800 MHz</li> </ul>
Speed (DL/UL)	EC25-E: <ul style="list-style-type: none"> <li>• LTE Cat 4.                             <ul style="list-style-type: none"> <li>• FDD: 150Mbps/50Mbps</li> <li>• TDD: 130Mbps/35Mbps</li> </ul> </li> <li>• HSPA+ Cat 24/6: 42Mbps/5.76Mbps</li> <li>• EDGE: 236Kbps</li> </ul>
CONNECTOR	Two RF SMA female connectors. (Optional).
SIM Slots	2 Mini-SIM (2FF) ISO/IEC 7810:2003, ID-000 (1.8V / 3V)

### A.2.7 Configuration Interface

LOCAL TERMINAL	V.24 115200-8-N-1-without flow control.
CONNECTOR	RJ-45 female on the connector panel.

### A.2.8 RS-232 Serial Interface

STANDARDS	RS-232. Asynchronous serial port with control signals.
SPEED	From 300 to 115200 bps.
CONNECTOR	RJ-45 female on the connector panel (optional).

### A.2.9 RS-485 Serial Interface

STANDARDS	RS-485 2-4 wires/RS-422 configurable via software. Bus termination configurable via software.
SPEED	From 300 to 115200 bps.
CONNECTOR	RJ-45 female on the connector panel (optional).

## A.2.10 Power Supply Specifications

### A.2.10.1 AC model

NOMINAL	110-240 V AC.
ABSOLUTE MAXIMUM	85-264 V AC.
FREQUENCY	50-60 Hz
MAXIMUM POWER	10 W
CONNECTOR	Terminal Block 2 Poles 5.08 mm pitch.

### A.2.10.2 DC model

NOMINAL	12-72 V DC
ABSOLUTE MAXIMUM	9 - 80 V DC
MAXIMUM POWER	10 W
CONNECTOR	Terminal Block 2 Poles 5.08 mm pitch.

### A.2.10.3 MR model

NOMINAL	110-240 V AC 48-72 V DC
ABSOLUTE MAXIMUM	85-264 V AC 40 - 85 V DC
FREQUENCY	50-60 Hz (AC)
MAXIMUM POWER	10 W
CONNECTOR	Terminal Block 2 Poles 5.08 mm pitch.

## A.2.11 Dimensions and weight

TYPE	Plastic ruggedized casing with optional DIN rail mount.
LENGTH x WIDTH x HEIGHT	140 x 80 x 190 mm.
WEIGHT	1 Kg.

## A.2.12 Environmental Specifications

TEMPERATURE RANGE	OPERATION: -20 °C to +70 °C STORAGE: -25° to +70 °C
RELATIVE HUMIDITY	5 % to 93 %

## Appendix B Radio Information

### B.1 RF WWAN Specifications

The Regesta Smart PRO model with the EC25 module provides network connectivity over several radio frequency bands, in accordance with 3GPP Standards.

- LTE (3GPP Release 10),
- DC-HSPA+ (3GPP Release 8),
- HSPA+ (3GPP Release 7),
- HSUPA (3GPP Release 6),
- HSDPA (3GPP Release 5),
- and GSM, GPRS, EDGE (3GPP Release 99 with Feature Package#1).

This product is supplied without antennas. Choosing antennas is at the discretion of the operator, but said party is responsible for ensuring they comply with local regulations.

Technology: LTE.

Bands	Frequencies	Conducted Transmit Power
Band 1	Tx: 1920-1980 MHz Rx: 2110-2170 MHz	+23 dBm $\pm$ 2 dB
Band 3	Tx: 1710-1785 MHz Rx: 1805-1880 MHz	+23 dBm $\pm$ 2 dB
Band 7	Tx: 2500-2570 MHz Rx: 2620-2690 MHz	+23 dBm $\pm$ 2 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	+24 dBm +1/-3 dB
Band 8	Tx: 880-915 MHz Rx: 925-960 MHz	+24 dBm +1/-3 dB

Technology: GSM / GPRS / EDGE.

Bands	Frequencies	Conducted Transmit Power
EGSM 900 (900 MHz)	Tx: 880-915 MHz Rx: 925-960 MHz	+33 dBm $\pm$ 2 dB +27 dBm $\pm$ 3 dB
DCS 1800 (1800 MHz)	Tx: 1710-1785 MHz Rx: 1805-1880 MHz	+30 dBm $\pm$ 2 dB +26 dBm $\pm$ 3 dB