

## Teldat Connect-4GE Router

Teldat Dm591-I

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## Chapter 1 About This Guide

This is the installation guide for the Teldat Connect-4GE router and contains information on how to correctly install this device in a working environment.

### 1.1 Supported Devices

The information contained in this installation guide only applies to the Teldat Connect-4GE router.

### 1.2 Who should read this manual?

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

### 1.3 When should this manual be read?

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

This manual will 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 available features in the Teldat Connect-4GE.
- Technical specifications.
- Power supply requirements.
- Elements you can connect to the device while it is running.
- Installation and removal procedures for modules and power supplies.
- A description of the device LEDs and connectors.
- Troubleshooting.

### 1.5 What is not in this manual?

This manual does not contain information relative to the device software, nor does it contain information on the configuration. For information on configuring this device, please see the relevant protocol manuals, which can be found on the Teldat website: [www.teldat.com](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, technical specifications and information on a component can be found in the chapter dedicated to that component.

### 1.7 Technical Support

Teldat, S.A. offers a technical support service. Device software can be upgraded on a regular basis for maintenance purposes and for new features.

Contact information:

Web: [www.teldat.com](http://www.teldat.com)

Tel.: +34 918 076 565

Fax: +34 918 076 566

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

## 1.8 Related documentation

Dm748-I *Software Updating*.

## Chapter 2 Teldat Connect-4GE Router

### 2.1 Characteristics

#### 2.1.1 Power Supply

For further information on the power supply for the Teldat Connect-4GE, please see the chapter on “Components and power supplies”, in the section on “Power Supply”.

#### 2.1.2 Hardware Monitoring

The Teldat Connect-4GE router hardware is monitored through the LEDs panel. The LEDs provide visual information on what is happening in the device. They indicate the state of the hardware components, whether there is connectivity or not, data flows, etc.

For further information on the LED panel, please see the section on [Components](#) on page 4 in the following chapter.

## Chapter 3 Components and Power Supply

The following chapter provides detailed information on the chassis of the Teldat Connect-4GE router and its components. This information includes:

- Components.
- Information on assembly.
- Power supply.
- RESET button.
- Data connection.
- SIM card installation.

### 3.1 Components

#### 3.1.1 Front Panel

Figure 1 shows the front panel. Here you can find one of the WWAN antenna connectors and the slot for SIM card insertion.

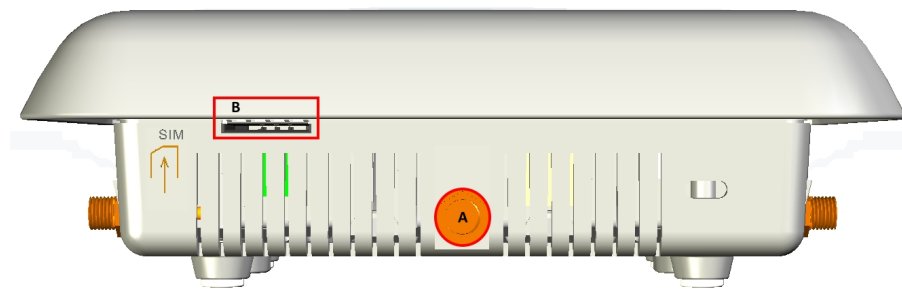


Fig. 1: Front Panel

The front panel elements are as follows:

#### FRONT PANEL ELEMENTS Table

Item	Description
A	WWAN antenna connector.
B	Slot for the SIM card.

#### 3.1.2 Rear Panel

Figure 2 shows the rear panel. Here you can find other Teldat Connect-4GE connectors.

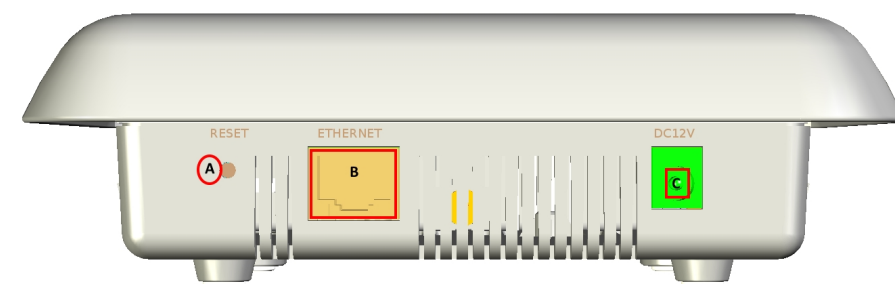


Fig. 2: Rear panel



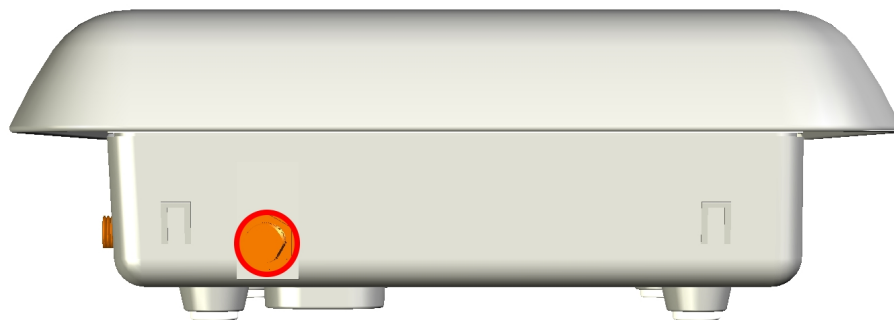
The following table provides information on each connector and a description:

#### Rear PANEL ELEMENTS TABLE

Item	Description
A	RESET. Reset button. For further information on how the reset button operates, please see the section on the <a href="#">RESET Button</a> on page 11 further on in this chapter.
B	ETHERNET. Gigabit Ethernet.
C	Power source connection (PSU).

### 3.1.3 Side Panels

Two WWAN antennas are located on the side panels, one on either side.



*Fig. 3: Right hand side panel*



*Fig. 4: Left hand side panel*

### 3.1.4 Underside Panel

The following elements can be found on the underside panel:

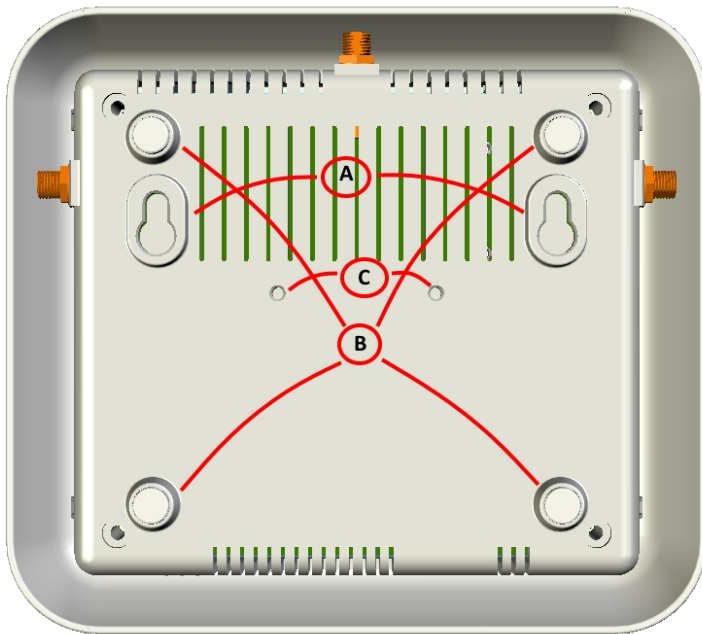


Fig. 5: Underside panel

The following table contains details on the significant elements on the underside panel.

**underside PANEL ELEMENTS TABLE**

Item	Description
A	Slots for wall mount.
B	Rubber feet.
C	Perforations to install a DIN rail mount. (Optional.)

### 3.1.5 Top Panel (LEDs)

The LED panel provides information on the state of the components (whether they are active or not) and on network activity.

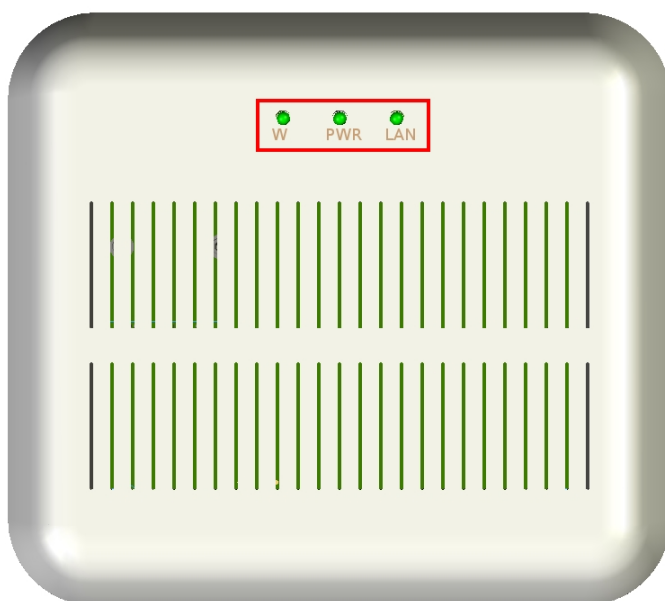


Fig. 6: LED Panel

The Teldat Connect-4GE LEDs are shown in Figure 6. The following table contains a description:

**LEDs table**

LED	Status	Description
-----	--------	-------------

LAN	Tricolor	Green -> connected. Blinking: connection data activity. Amber -> blinking: auto-test. Red -> disconnected.
PWR	Monochrome green	Device ON/OFF. This lights up when connected to the power source.
W	Tricolor	Off -> system stopped. Red -> interface is unavailable because it is installing, not enabled (shutdown) or due to auto-test failure. Yellow -> idle. <ul style="list-style-type: none"> <li>• Rapid blinking. It hasn't registered in the network or the quality is insufficient.</li> <li>• Slow blinking. GSM connection (GPRS).</li> <li>• Steady. WCDMA (UMTS/HSDPA) or LTE connection.</li> </ul> Green -> connected. Blinking: connection data activity.

## 3.2 Assembly

### 3.2.1 Mounting in rack

The Teldat Connect-4GE cannot be mounted in a rack. However, there are other types of mounting.

### 3.2.2 Standalone

The Teldat Connect-4GE can be placed as a standalone on a flat, stable surface.

Make sure there is enough space around the router for ventilation purposes and that electricity cables can reach it.

### 3.2.3 Wall mounting

The Teldat Connect-4GE can be mounted on the wall.

There are two slots on the underside of the device for wall mounting. You can see this under [Underside Panel](#) on page 5.

We recommend the following accessories, valid for solid walls and Gypsum board (plaster) walls:

- 2 screws [COACH SCREW HEAD 90 DEGR.POZIDR. 3,5x30]



Fig. 7: Screw

- 2 wall anchors: [WHITE STRIATED WALL ANCHOR DIAM.8mm]



Fig. 8: Wall anchor

**Caution**

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.

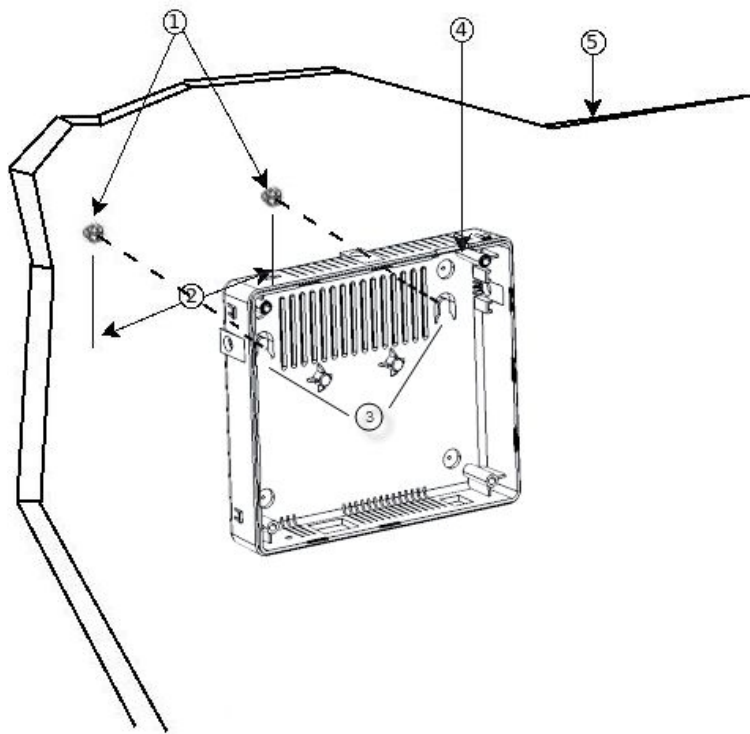


Fig. 9: Wall-mounting features on the Teldat Connect-4GE router

The above figure shows the wall-mounting features on the Teldat Connect-4GE router.

1	Wall screws	2	8,8 cm (3.46 inches)
3	Chassis mounting holes (on the underside)	4	Router chassis
5	Mounting surface		

To mount the router on a wall or other surface, follow these steps:

**Procedure**

**Step 1** Install the two screws (3.5x30) horizontally apart on a wall or any other vertical surface.

The screws should protrude 0.6 cm (0.25 inch) from the surface of the wall.

**Caution**

If you install the screws in drywall, use hollow-wall anchors (8mm – 5/16 inch) to secure the screws. If the screws are not properly anchored, the strain of the cables connected to the router back panel could pull the router from the wall.

**Step 2** Hang the router on the screws. This is the appropriate orientation for a safe use. (See Figure 9.)

**Note**

- The accessories to mount the device on the wall are not provided in the package and must be acquired separately.
- The accessories must match the kind of wall and have to support the weight of the device.

### 3.2.4 Installing a DIN rail mount accessory (Optional)

The router packaging can contain a DIN rail mount kit, which can be attached to the router (thus permitting various mounting positions).

The kit contains 2 screws to adjust the rail accessory on the underside of the device, as shown in Figure 10.

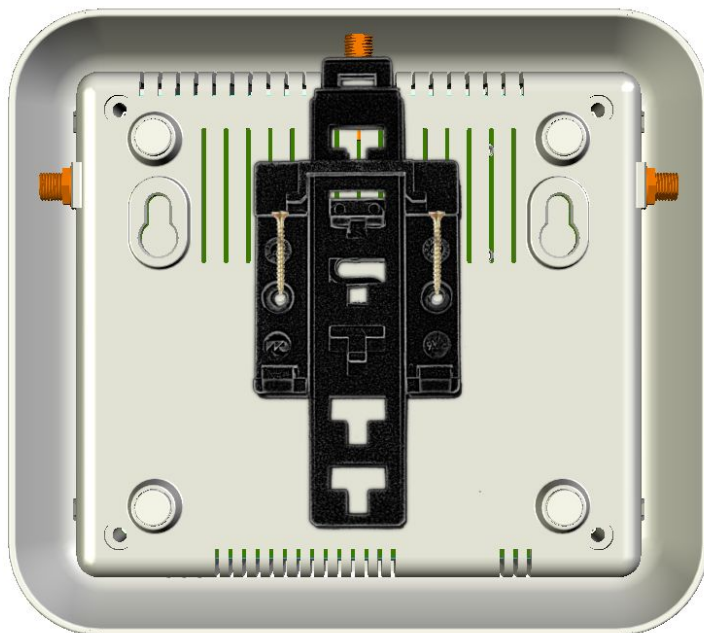


Fig. 10: DIN rail mount adapter

## 3.3 Power Source

The Teldat Connect-4GE is powered through an external AC/DC source or through an Ethernet cable (provided it complies with the POE 802.3af standard).



#### Warning

The equipment must be used with the power supply provided by the manufacturer, or equivalent.

#### Workplace Conditions. Main Characteristics

- Avoid humid and or dusty locations.
- Direct exposure to sunlight and to other heat sources should be avoided. The device should not be placed amongst papers, magazines or other elements that could hinder natural air circulation.
- The device should not be placed very close to strong electromagnetic fields such as speakers, engines, etc.
- 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 the relevant section.**

### 3.3.1 External Power Source

To connect the power supply to the device, please follow the steps indicated in the “If the Ethernet cable is not PoE” section.

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

**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.), we highly recommend connecting all data devices to the same power source. This will help prevent drivers and other components from aging prematurely and displaying other operating problems.

### 3.3.2 PoE

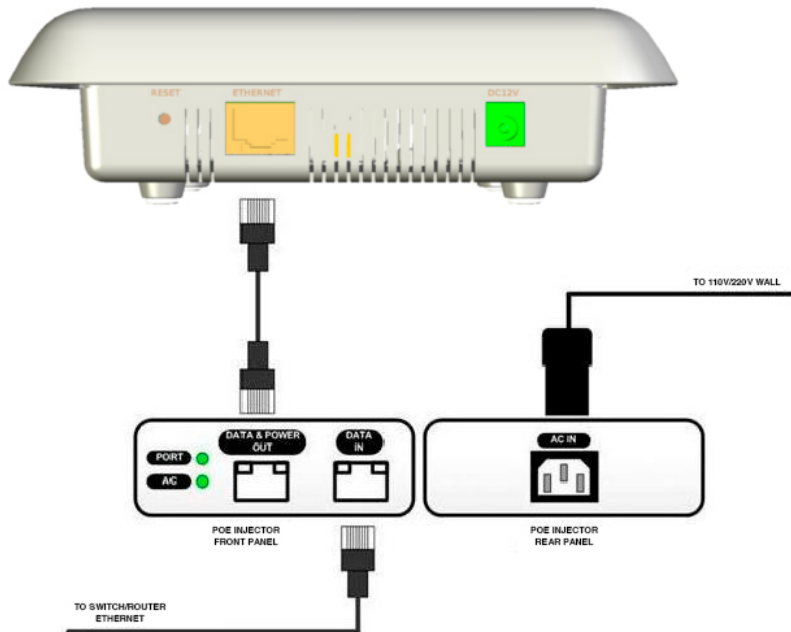


Fig. 11: Diagram to connect the PoE adapter to the router

The Teldat Connect-4GE can be powered through an Ethernet cable, provided it complies with the POE 802.3af standard. The ETHERNET port is enabled for this.

To connect the Ethernet cable with PoE power to the router, please carry out the steps included in the [If the Ethernet cable is PoE](#) on page 11.

Figure 11 illustrates how to connect the PoE injector to the device.

### 3.3.3 Connecting to the power source

#### 3.3.4 Connect

##### 3.3.4.1 If the Ethernet cable isn't PoE

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

### 3.3.4.2 If the Ethernet cable is PoE

- Check that the Ethernet cable that is going to be used for power is NOT connected to the router.
- Make sure the router's power switch is in the OFF position (0).
- Make sure the power supply is NOT connected to the electricity supply.
- Connect all data cables.
- If you need redundant power, connect the power supply to the device.
- If you need redundant power, connect the power supply to the electricity supply.
- Connect the Ethernet cable.
- Change the router's power switch to the ON position (1).

## 3.3.5 Disconnect

### 3.3.5.1 If the Ethernet cable isn't PoE

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

### 3.3.5.2 If the Ethernet cable is PoE

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

## 3.4 RESET Button

The different features of the RST button are described below.

### 3.4.1 Rebooting the device

To reboot the device once it is operating normally, press the RST button (this restarts the router).

### 3.4.2 Default Configuration

The RST button allows you to boot the device with its default configuration through the following steps:

- With the device switched off, keep the RESET button pressed until it switches on.
- The POWER LED (green) will light up and the W LED will begin to blink. This blinking will continue for 10 seconds.
- For the device to boot with the default configuration, stop pressing the RESET button while the W LED is blinking (i.e. before the 10-second period expires).

The router's default configuration sets 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 personalized settings. As a result of this customization, the default configuration may be different from the one shown above.

## 3.5 Connecting data

The Teldat Connect-4GE has the following data connections.

### 3.5.1 ETHERNET Connection

The Teldat Connect-4GE incorporates an Ethernet 10/100/1000 BaseT Switch port with automatic MDI/MDIX.

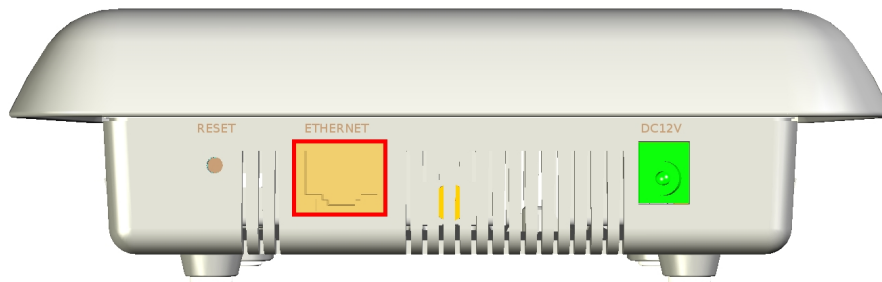


Fig. 12: ETHERNET Port

### 3.5.2 Connecting the WWAN Antenna

The Teldat Connect-4GE has three connectors to connect WWAN antennas. To assemble and disassemble the antennas, simply screw them into the connectors on the router's front and side panels.

Installing these antennas in the Teldat Connect-4GE is essential when it comes to improving the quality of the signal received and transmitted by the cellular model.



#### Note

To achieve good quality performance, the Teldat Connect-4GE should always have the WWAN antennas installed.

Some cellular telephony technologies use the antenna diversity technique to improve the quality of the signal received (HSUPA, CDMA EV-DO, LTE, etc.). As a result, the Teldat Connect-4GE router family incorporates various WWAN connectors.

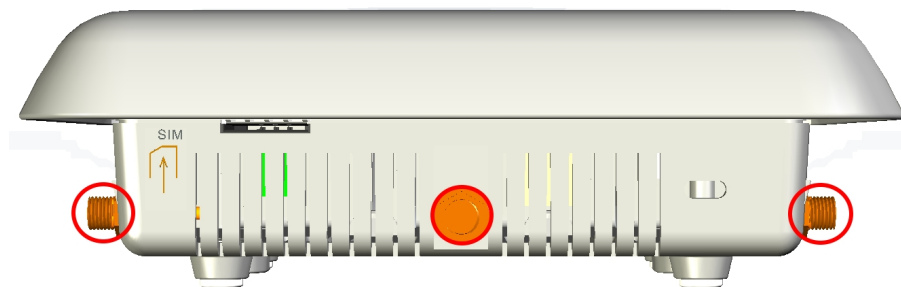


Fig. 13: The WWAN Antennas seen from the front panel

When the antennas are not directly connected to the router, but are installed through extension cords, the minimum distance between the two must be 7cm. The maximum recommended distance between them is 25cm.

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

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



### 3.5.2.1 Placing the Antenna

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

The Teldat Connect-4GE transmits and receives 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 caused by radiofrequencies (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.
- The density of materials also affects antennas. Place them away from all types of walls, 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 ducts such as canalization, air-conditioning.
- 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 handle any equipment that contains devices which radiate, and keep it far from any exposed part of the body, particularly the face or eyes, when it is transmitting.
- Do not install the device in areas where the atmosphere is potentially explosive.
- Wireless devices can cause interferences with other devices. Do not use the device in environments where medical equipment is installed.
- To ensure compliance with the R&TTE 1999/5/EC standard, the device must be at least 1.5 cm away from a human body when operating.

## 3.6 Installing the SIM card

For the WWAN interface to operate correctly, a SIM card must be inserted in the Teldat Connect-4GE. The router is equipped with an external SIM card tray.

When inserting the SIM card, make sure you are protected against electrostatic discharges (ESD).

Do not touch the SIM card connector.

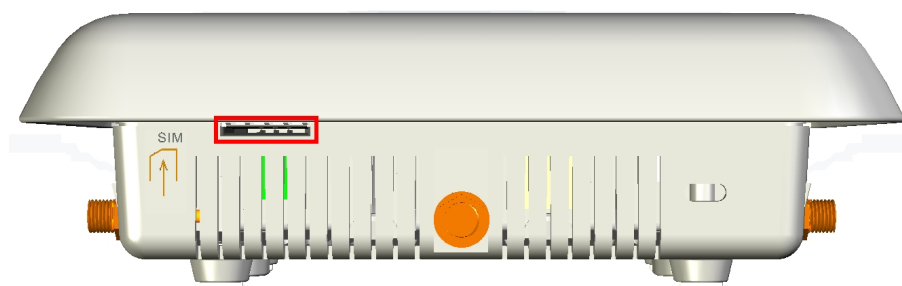


Fig. 14: Slot to insert the SIM card






Procedure:

- Place the router as shown in Figure 14.
- To insert the SIM card, introduce it as shown in the Teldat Connect-4GE figure.

- Then press it until it is totally inserted.
- To extract it, press it again and remove it.

## Appendix A Safety information

### A.1 Translated Safety Warnings

	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.
	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.
	If you install the screws in drywall, use hollow-wall anchors (8 mm – 5/16 inch) to secure the screws. If the screws are not properly anchored, the strain of the cables connected to the router back panel could pull the router from the wall.
	Si instala los tornillos en paneles de yeso, utilice tacos de pared hueca (8 mm - 5/16 pulgada) para fijar los tornillos. Si los tornillos no están bien anclados, la tensión de los cables conectados al panel posterior del router podría hacer que el router se cayera de la pared.
	The equipment must be used with the power supply provided by the manufacturer, or equivalent.
	El equipo debe ser usado con la fuente de alimentación proporcionada por el fabricante, o una equivalente
	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 the relevant section.
	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 <i>Connect</i> on page 10 y <i>Disconnect</i> on page 11.
	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.
	Todos los equipos de comunicaciones interconectados deberían estar unidos a UNA MISMA TOMA DE TIERRA, a ser posible de buena calidad (inferior a 10 ohmios).
	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 a la misma fuente de alimentación. Así, se ahorrará problemas de funcionamiento y envejecimiento prematuro de drivers y demás componentes.

## A.2 PSU Energy Efficiency

According to Commission Regulation (EU) 2019/1782 laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009, the instruction manuals for end-users shall include the following information:

<i>Model</i>	WA-12M12R
<i>Manufacturer Name</i>	ASIAN POWER DEVICES INC. (APD)
<i>Manufacturer Address</i>	NO.5 LANE 83. LUNG-SOU ST, TAO-YUAN CITY, TAIWAN R.O.C.
<i>Input Voltage</i>	100-240 Vac
<i>Input AC frequency</i>	50-60 Hz
<i>Output voltage</i>	12.0 V
<i>Output current</i>	1.0 A
<i>Output power</i>	12,0 W
<i>Average active efficiency</i>	88.6 %
<i>Efficiency at low load (10%)</i>	73.8 %
<i>No-load power consumption</i>	0.09 W

## Appendix B Appendix B

### B.1 Troubleshooting

The following table can help you solve problems during the installation of the router. If you cannot solve the issue, please contact your distributor for additional information.

Symptom	Solution
None of the LEDs lights up on the router.	Check the power supply to the router (power source, ON/OFF switch, main power outlet).
You have forgotten the access password for the router.	Ignore the configuration through the RESET button as explained in the section relative to the RESET button.
The LAN LED never lights up in green.	Check the Ethernet cable and the connection to the network.
The W LED never lights up in green.	Check the router's configuration and that for the remote station(s). Check the appropriate license is available for its use.
You cannot connect to the device after updating the software.	A failure in the downloading process may have damaged the current software image stored in the memory of the device. This may occur, for instance, when the device is turned off before buffering is complete. The device will then start up with special software and configuration modes. You may access the device through IP address 192.168.1.1/24 and use FTP to re-start the uploading process to this address, inserting "root" as the username and no password. Bear in mind that, in order to reach IP address 192.168.1.1/24, you must configure an IP address belonging to that subnet in the device used for FTP purposes.

### B.2 Updating the software

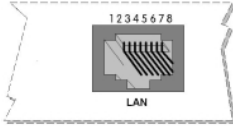
The Teldat Connect-4GE router can be updated to new releases. Please ask your distributor for further details on new releases.

Firmware updating is carried out through a traditional FTP file transfer. For further information on updating firmware through FTP, please see manual Dm748-I Software Updating, section 1.3 *FTP Updating*.

## B.3 Connectors


### B.3.1 LAN Connector

#### LAN Connector

RJ45 LAN	RJ45 PINOUTS	FE Signals	GE Signals	PoE Signals
	1	BI-DA+	BI-DA+	POE+(A)
	2	BI-DA-	BI-DA-	POE+(A)
	3	BI-DB+	BI-DB+	POE-(A)
	4	--	BI-DC+	POE+(B)
	5	--	BI-DC-	POE+(B)
	6	BI-DB-	BI-DB-	POE-(A)
	7	--	BI-DD+	POE-(B)
	8	--	BI-DD-	POE-(B)

### B.3.2 WWAN Connector (female)

#### WWAN Connector

	PINOUT	ANT
	<b>Internal</b>	RF in/out
	<b>External</b>	GND

### B.3.3 Power Supply Connector

#### Power Supply Connector

	PINOUT	ANT
	<b>Internal</b>	POSITIVE
	<b>External</b>	NEGATIVE

## B.4 Technical Specifications

### B.4.1 Hardware Architecture

PROCESSORS	Freescall P1014.
MEMORY	DDR3 1Gbit (128 MByte).
STORAGE UNIT	FLASH Memory 128 Mbits (16 Mbytes).

### B.4.2 LAN Interface

PROTOCOLS	Ethernet (802.3).
PORTS	Port managed with MDI/MDX autodetection.
SPEED	10/100/1000 Mbps (BaseT).
CONNECTOR	RJ45 female.

### B.4.3 Wireless WAN Interface

STANDARDS	GPRS, UMTS, HSDPA, HSUPA, HSPA+, LTE ... Depending on the router's Wireless WAN interface version.
SPEED	Depending on the router's Wireless WAN interface version. Please check the module manual.
CONNECTOR	3RF SMA female per module.
ANTENNA	Depends on the type of Wireless WAN module. Please check the antenna catalog for Cellular interfaces.

### B.4.4 Power Supply

INPUT VOLTAGE	+12V DC.
INPUT CURRENT	1200 mA.
JACK	5.5 mm.
INTERNAL PIN	2.5 mm.

### B.4.5 External Power Supply

INPUT VOLTAGE	100-240V AC.
INPUT CURRENT	1.0 A.
INPUT FREQUENCY	50-60 Hz.

### B.4.6 Dimensions and weight

TYPE	Desktop or wall mounted.
LENGTH x WIDTH x HEIGHT	145 x 160 x 50 mm.
WEIGHT	0.3 Kg.

### B.4.7 Environmental Specifications

TEMPERATURE	OPERATING NORMALLY: 0°C to 45°C STORED: -25°C to 70°C
RELATIVE HUMIDITY	On: 5% to 90%