Teldat Connect-KFPlus

Installation Manual

Legal Notice

Warranty

This publication is subject to change.

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

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I Related Documents

Teldat Dm704-I Configuration and Monitoring

Teldat Dm748-I Software Updating

bintec Next Generation WLAN Manual

Chapter 1 About This Guide

This is the installation manual for the **Teldat Connect-KFPlus** router and contains information on how to correctly install the device in a working environment.

1.1 Supported Devices

The information provided in this installation manual only applies to the **Teldat Connect-KFPlus** router.

Note

The Wi-Fi version includes an embedded bintec WE2022ac access point.

For more information on the latter, please refer to manual "*bintec Next Generation WLAN*".

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 manual contains the following information:

- A description of the available features in the **Teldat Connect-KFPlus** router.
- Technical specifications.
- Power supply requirements.
- Elements that can be connected when the router is operating.
- How to install and uninstall the modules and power sources.
- 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

Note

For information on how to configure the bintec WE2022ac WiFi access point, refer to manual "*bintec Next Generation WLAN*".

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 Technical Support

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

Contact information:

Web: http://www.teldat.com - Email: support@teldat.com

Tel.: +34 918 076 565 - Fax: +34 918 076 566

Chapter 2 Teldat Connect-KFPlus

2.1 Characteristics

2.1.1 Power Supply

For further information on the different **Teldat Connect-KFPlus** power supplies, please see *Components and Power Supply* on page 5, *Power Source* on page 11.

2.1.2 Hardware Monitoring

The LEDs on the front panel are used to monitor the hardware in the **Teldat Connect-KFPlus** router. These LEDs provide visual information on the state of the device and reference the condition of the hardware components, indicating whether or not there is connectivity, data flow, etc.

For further information on the LED panel, please see *Components* on page 5.

Chapter 3 Components and Power Supply

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

- Components.
- Information on assembly.
- Power supply.
- RST button.
- Data connection.
- SIM card installation.
- Embedded access point.

3.1 Components

3.1.1 Front Panel

The following figure shows the front panel.

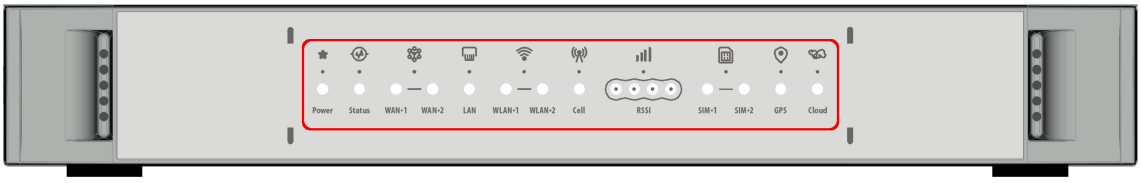


Fig. 1: **Front Panel of the Teldat Connect-KFPlus** *device*

The front panel elements are as follows:

FRONT PANEL ELEMENTS

Item	Description
A	LED panel.

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

LEDs

LED	Definition	Status Indication
Power 	Power / Switch On-Off	Off -> No power through PSU. On -> Powered through PSU.
Status 	General Status / Default Configuration Process	Off -> System off. Red -> Error, component operating incorrectly. Green -> System initialized and operating. Amber (blink) -> Default configuration.
WAN-1 	Base-T / SFP	Off -> No link or not used. Green -> Link (1G). Blinking: traffic activity. Amber -> Link (<1G). Blinking: traffic activity.

		Red -> Error. Interface failure.
WAN-2 	Base-T / SFP	Off -> No link or not used. Green -> Link (1G). Blinking: traffic activity. Amber -> Link (<1G). Blinking: traffic activity. Red -> Error. Interface failure. This interface is disabled by default and can be enabled by means of a license.
LAN Switch 	LAN switch interface activity	Green -> connected (all connected ports at 1G). Blinking: connection data activity. Amber -> connected (at least one port at <1G). Blinking: connection data activity. Red -> Disconnected. Off -> Interface off.
WLAN-1  (Depending on the model)	Access Point 2.4 GHz radio	Off -> Radio module and/or SSIDs inactive. Red -> No connection, or disabled (shutdown). Amber -> Enabled, but no associated STAs. Green -> Connected. Blinking: connection data activity.
WLAN-2  (Depending on the model)	Access Point 5 GHz radio	Off -> Radio module and/or SSIDs inactive. Red -> No connection, or disabled (shutdown). Amber -> Enabled, but no associated STAs. Green -> Connected. Blinking: connection data activity.
Cell	Status 	Not used on this router.
	RSSI. Coverage indication 	Not used on this router.
	SIM-1 	Not used on this router.
	SIM-2 	Not used on this router.
GPS (Depending on the model) 	GPS Status	Not used on this router.

Cloud 	Cloud Information	Not used on this router.

3.1.2 Rear Panel

The following figure shows the rear panel. Here you will find most connectors belonging to the **Teldat Connect-KFPlus** router.

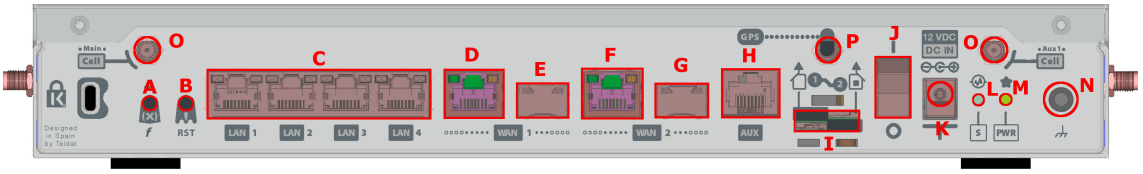


Fig. 2: **Rear panel**

The following table provides information on each connector, as well as a description:
Rear panel elements

Item	Description
A	Function.
B	RST. Reset button. For further information on how the reset button works, please see *RST Button* on page 13.
C	4-port Gigabit Ethernet switch. For more information about the LAN interface, refer to: - *4-port Ethernet switch Connections* on page 14 - *LAN Connector (Switch)* on page 22 - *LAN Interface* on page 24
D	Eth WAN-1 Base-T. WAN Gigabit Ethernet. For more information about the WAN interface, refer to: - *WAN Connections* on page 14 - *WAN Base-T Connector* on page 23 - *WAN Base-T Interface* on page 25
E	Eth WAN-1 SFP. For more information about the SFP interface, refer to: - *WAN Connections* on page 14 - *WAN SFP Connector* on page 23 - *WAN SFP Interface* on page 25
F	Eth WAN-2 Base-T. WAN Gigabit Ethernet. This interface is disabled by default and can be enabled by means of a license. For more information about the WAN interface, refer to: - *WAN Connections* on page 14

	- *WAN Base-T Connector* on page 23 - *WAN Base-T Interface* on page 25
G	Eth WAN-2 SFP. This interface is disabled by default and can be enabled by means of a license For more information about the SFP interface, refer to: - *WAN Connections* on page 14 - *WAN SFP Connector* on page 23 - *WAN SFP Interface* on page 25
H	Aux. provides access to the **Teldat Connect-KFPlus** local console for configuration and monitoring purposes. For more information about the Aux connector, refer to: - *Connecting for Configuration* on page 15 - *Configuration Connector* on page 24 - *Configuration Interface* on page 27
I	SIM Card 1-2. These slots are not used on this router.
J	On/Off switch.
K	Power source connection (PSU). Refer to *Power Source* on page 11 for more information about Power connection and *Power Supply* on page 27 for power specifications applicable to the **Teldat Connect-KFPlus** device.
L	LED S (Status). Refer to *LEDs* on page 5 for more information.
M	LED PWR (Power). Refer to *LEDs* on page 5 for more information.
N	Functional earthing. Usually disconnected.
O	Cell antenna connectors. They are not used on this router.
P	GPS antenna connector. This is not not used on this router.

In addition to the foregoing, the rear panel also has LEDs linked to the Switch Ethernet interfaces.

3.1.2.1 LEDs

The following figure shows the router's Ethernet switch LED indicators:

Fig. 3: **Switch LEDs**

Switch LED indicators

LED	Description
Yellow	Connected to 10 M: - Steady: Not transferring data. - Blinking: Transferring data.
Yellow + Green	Connected to 100 M: - Steady: Not transferring data. - Blinking: Transferring data.
Green	Connected to 1000 M: - Steady: Not transferring data. - Blinking: Transferring data.
None	The interface is either unavailable, not installed, or not registered.

The following figure shows the router's WAN LED indicators (only for the Base-T connector):

Fig. 4: **WAN LEDs**

WAN LED indicators

LED	Description
Yellow	Connected to 10 M: - Steady: Not transferring data. - Blinking: Transferring data.
Yellow + Green	Connected to 100 M: - Steady: Not transferring data. - Blinking: Transferring data.
Green	Connected to 1000 M: - Steady: Not transferring data. - Blinking: Transferring data.
None	Interface is either unavailable, not installed, or not registered.

3.1.3 Side Panels

Two antenna connectors are located on the side panels.

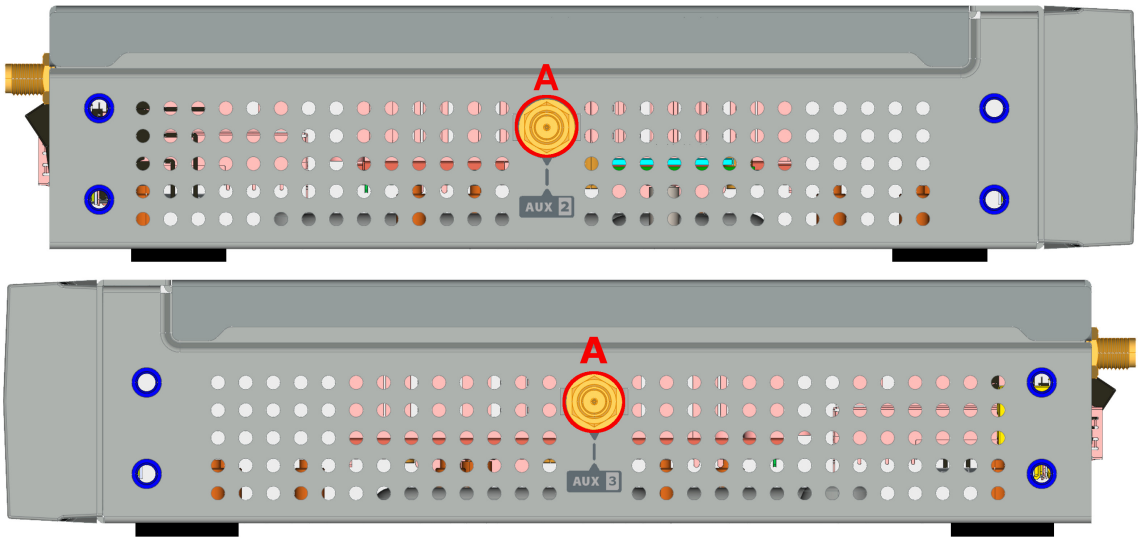


Fig. 5: **Left and right side panels**

The connectors are as follows:
Side panel connectors

Item	Description
A	Aux 2 and Aux 3 connectors. These are not used on this router.

3.1.4 Underside Panel

The following elements are located on the underside panel:

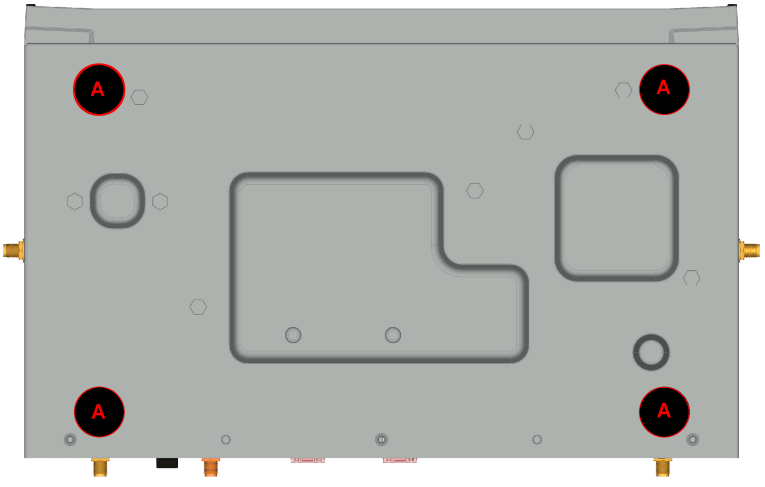


Fig. 6: **Underside panel**
UNDERSIDE PANEL ELEMENTS

Item	Description
A	Adhesive rubber feet (these are not required for rack mounting).

3.2 Mounting an Anti-Theft Security Cable

Teldat Connect-KFPlus devices have been equipped with a standard Kensington security slot to which a security cable can be attached. The T-bar lock of the security cable allows the device to be attached to an anchor point, thus preventing potential thefts.

The security slot is located on the rear panel of the housing, as shown in the following figure:

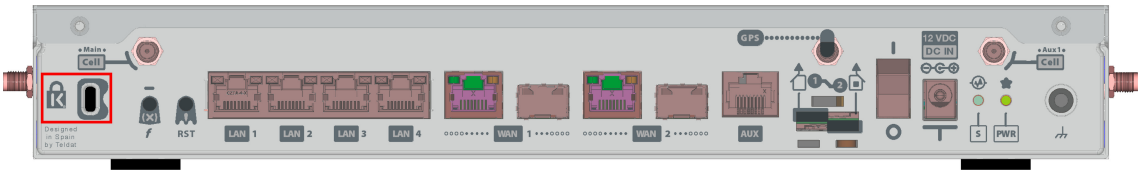


Fig. 7: **Security Slot**

3.3 Rack installation

The **Teldat Connect-KFPlus** device can be installed in a 19" rack. The necessary strips and screws are not provided by default and must be acquired separately.

Both strips are attached to the device by means of 5 screws, as shown in the following figure:

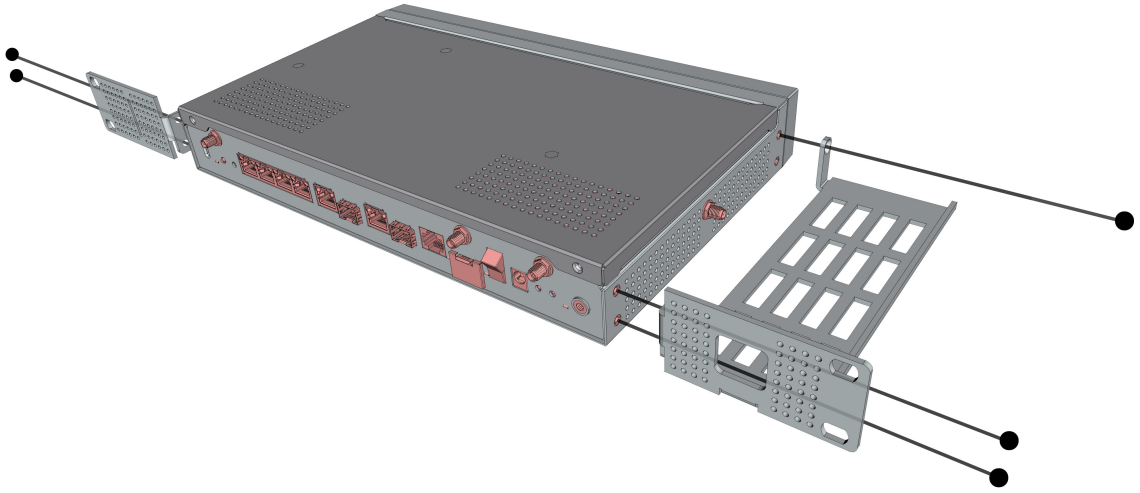


Fig. 8: **Rack anchor bolts**

Note

The device is designed to allow brackets to be attached to the front or rear of the router chassis.

3.3.1 Standalone

Teldat Connect-KFPlus devices can be placed as standalone on a flat, stable surface. The adhesive rubber feet must be stuck to the underside panel to prevent the router from sliding.

Make sure there is enough space around the router (for ventilation purposes) and check that the power cord and data cables can easily reach it.

3.3.2 Wall mounting

The **Teldat Connect-KFPlus** cannot be mounted on a wall.

3.4 Plug-in Modules

The **Teldat Connect-KFPlus** does not have plug-in modules.

3.5 Power Source

The **Teldat Connect-KFPlus** router is powered through an external AC/DC power adapter.

Warning

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

Workplace conditions. Main characteristics

- Avoid humid and/or dusty locations.
- Direct exposure to sunlight and 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 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 *Connecting* on page 12 and *Disconnecting* on page 12.

3.5.1 Power Source

To connect the power supply to the device, please follow the steps set out in *Connecting* on page 12.

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

Warning

For safety and EMC purposes, the external power supply must be connected to a grounded power outlet.

Note

We recommend plugging all interconnected communication devices to the same grounded power outlet.

3.5.1.1 Connecting

- Make sure the on/off power supply switch is in the OFF position (0).
- Make sure the power supply is NOT connected to the mains or to the device.
- Connect all data cables.
- Connect the external adapter power cable to the device.
- Connect the adapter power cable to the main supply (wall socket).
- Put the device's on/off power supply switch in the ON position (1).

3.5.1.2 Disconnecting

- Put the on/off power supply switch in the OFF position (0).
- Disconnect the adapter power cable from the main supply (wall socket).
- Remove the power supply cable from the device.
- Disconnect the data cables.

3.6 RST Button

The different RST button features are described below.

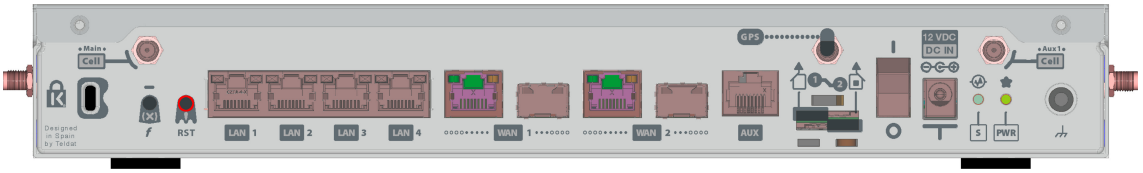


Fig. 9: **RST button**

3.6.1 Rebooting the device

Once the device is operating normally, pressing the RST button will force a restart.

Note

It will also force a restart of the embedded access point (if present).

3.6.2 Default Configuration

The RST button allows you to boot the device with its default configuration (including the embedded access point, if present). To do so, follow these steps:

- With the device switched off, press and hold the RST button down while you turn the router on using the ON/OFF switch (1).
- The PWR LED (green) will light up and LED 'S' will begin to blink (amber). It will carry on blinking for 10 seconds.
- To boot the device with the default configuration, release the RST button while LED 'S' is still blinking (i.e. before the 10-second period expires).

The router has an embedded access point. The default configuration looks like a template for a Wi-Fi configuration. It includes all the necessary elements to deploy a very basic Wi-Fi network. To activate this configuration, all you need to do is to enter the *enable* command at the WNMS feature menu.

This configuration will provide two Wi-Fi networks: *test_ssid_1* and *test_ssid_2*. The first one is placed in the 2.4 GHz band and the second one in the 5 GHz band. The password for both networks matches their ssid name.

The DHCP server configuration is divided into two parts. The first one focuses on giving an address to the embedded access point, while the second strives to give an address to the Wi-Fi clients that connect to the access point.

A bridge is installed to separate the traffic belonging to Wi-Fi clients from access point communications. Two VLANs are configured for this purpose.

The communication with the embedded access point is carried out via a separate port in the switch interface. This port is named "wlan" or listed as port 5.

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

- IP address: 192.168.0.1
- IP mask: 255.255.255.0

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

- IP address: DHCP client with no. 192.168.100.150/24 as default

Note

Some devices leave the factory with customized settings. This personalization means your router's default configuration (and that of the embedded access point, where applicable) may be different from the one shown above.

3.7 Data connections

The **Teldat Connect-KFPlus** router has the following data connections.

3.7.1 4-port Ethernet switch Connections

The **Teldat Connect-KFPlus** router incorporates 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:

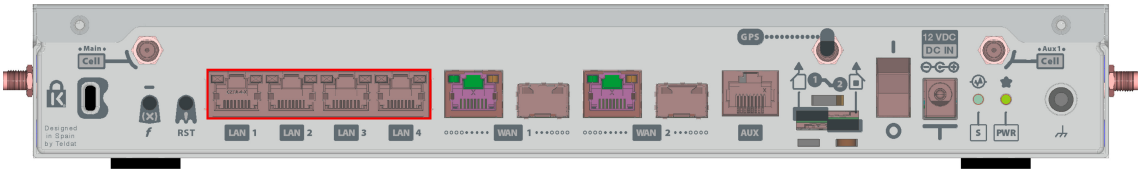


Fig. 10: **LAN switch ports**

Note

Only the LAN 1 connector is available during booting and in BIOS mode.

3.7.2 WAN Connections

The **Teldat Connect-KFPlus** has 4 Ethernet interfaces for WAN connection. These ports have 2 connectors - SFP for an optical link and RJ45 for a 10/100/1000 Base-T link - but they cannot work simultaneously. These interfaces are totally independent from the switch and are handled as every other interface.

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

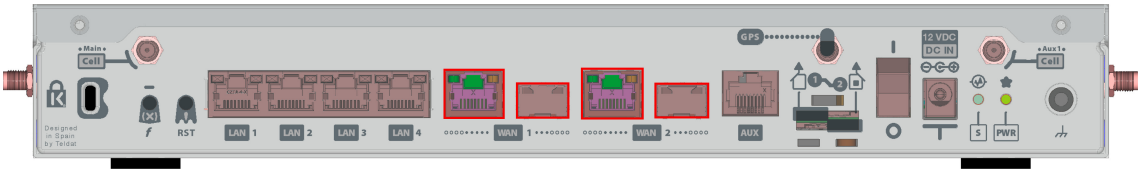


Fig. 11: **WAN connectors**

Note

WAN connectors do not work during booting and in BIOS mode.

3.7.2.1 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.

3.7.3 WWAN Antenna Connection (Cell connector)

The **Teldat Connect-KFPlus** router has two SMA connectors in the rear panel and two SMA connectors in the side panel that are not used on this router.

3.7.4 Connecting the GPS antenna

The **Teldat Connect-KFPlus** has an SMA connector in the rear panel that is not used on this router.

3.7.5 Wireless LAN internal antennas

The **Teldat Connect-KFPlus** has two integrated antennas for an internal Wireless LAN module covering both the 2.4 GHz and 5 GHz bands.

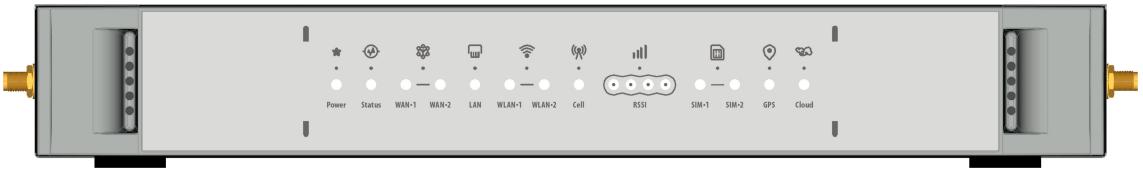


Fig. 12: **Antenna connectors**

3.7.6 Connecting for Configuration

The **Teldat Connect-KFPlus** has a RJ45 female connector on the front panel (labeled "Aux.") that provides access to the device's local console

For further information, please see *Connecting to the device* on page 21.

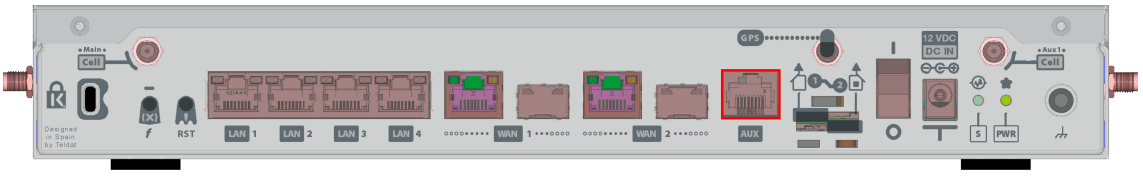


Fig. 13: **Aux. Connector**

3.8 Installing the SIM card

The **Teldat Connect-KFPlus** router does not use SIM cards.

Chapter 4 Compliance

4.1 Manufacturer Information

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

4.2 Risk identification

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

4.3 Safety Warnings

	The equipment must be used with the power supply provided by the manufacturer.
	Das Gerät muss mit dem vom Hersteller gelieferten Netzteil betrieben werden.
	El equipo debe ser usado con la fuente de alimentación proporcionada por el fabricante.
	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 12 and *Disconnecting* on page 12.
	Der elektrische Strom in Strom-, Telefon- und Datenkabeln ist gefährlich. Um Elektroschocks zu vermeiden, trennen Sie vor der Installation, der Bedienung oder dem Öffnen des Geräts die Kabel wie in den Abschnitten Verbinden und Trennen beschrieben.
	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 “Conectar” y “Desconectar”.
	For safety and EMC purposes, the external power supply must be connected to a grounded power outlet.
	Aus Sicherheits- und EMV-Gründen muss das externe Netzteil an eine geerdete Steckdose

	angeschlossen werden.
	Para cumplir con las recomendaciones de seguridad y EMC, la fuente de alimentación se debe conectar a una toma con tierra.
	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.
	Laserstrahlung. Nicht direkt mit optischen Instrumenten hineinsehen. LASERPRODUKT DER KLASSE 1. SFP-Module, die im Kartenschacht installiert werden sollen, sollten Klasse-1-Geräte in Übereinstimmung mit IEC/EN 60825-1:2007 sein.
	Radiación laser. No mirar directamente con instrumentos ópticos. Producto LASER CLASE 1. 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.

4.4 WEEE Information

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

4.5 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.

4.6 Power Usage and Energy Efficiency

This device is an Energy Related Product (ErP) with High Network Availability (HiNA), and automatically switches to a power-saving Network Standby mode when no packets have been transmitted for 10 minutes (set by default).

It can also be turned off through a power switch to save energy when it is not needed.

Network Standby: 6.5W

All interfaces can be shut down individually:

- Interfaces controlled by the **Teldat Connect-KFPlus** device (all but Wi-Fi): check the CIT configuration manuals to learn how to disable each interface.
- Wi-Fi interfaces: refer to the "*bintec Next Generation WLAN Manual*" to learn how to disable each of the radio interfaces.

4.7 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:

Model	A0403TD
Manufacturer Name	Atech OEM Inc.
Manufacturer Address	2F No. 135 Lane 235 Baociao Rd, Sindian City Taipei County, 23145 TW.
Input Voltage	100-240 Vac
Input AC frequency	50-60 Hz
Output voltage	12.0 V
Output current	3.34 A
Output power	40.0 W
Average active efficiency	88.8%
Efficiency at low load (10%)	84.2%
No-load power consumption	0.09 W

4.8 EC Declaration of Conformity

English (EN)	Hereby, Teldat S.A. declares that radio equipment **Teldat Connect-KFPlus** complies with: Directive 2014/53/EU (RED) Directive 2009/125/EC (ErP) Directives 2011/65/EU and 2015/863/EU (RoHS) of the European Parliament and of the Council.
German (DE) Deutsch	Hiermit erklärt Teldat S.A. die Übereinstimmung des Geräts **Teldat Connect-KFPlus** mit: Richtlinie 2014/53/EU (RED) Richtlinie 2009/125/EG (ErP) Richtlinien 2011/65/EU und 2015/863/EU (RoHS) des Europäischen Parlaments.
Spanish (ES) Español	Por la presente, Teldat S.A. declara que el tipo de equipo radioeléctrico **Teldat Connect-KFPlus** es conforme con: Directiva 2014/53/UE (RED) Directiva 2009/125/CE (ErP) Directivas 2011/65/UE y 2015/863/UE (RoHS) del Parlamento Europeo y del Consejo.

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

http://www.teldat.com/conformity

4.9 CE Marking

This equipment is in conformity with CE procedures and marking.

4.10 National Restrictions

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

This product is supplied with antennas so as to fulfill local regulations. Do not choose other antennas. To comply with power limits and RF exposure requirements, the antennas used for this transmitter must be installed so that people keep a separation distance of, at least, 20 cm.

4.11 Operating Frequency

To find out more about operating frequencies, and the maximum power transmitted in the frequency bands in which the radio equipment operates, see appendix *WI-FI specifications* on page 29.

4.12 Intended use of the equipment

The **Teldat Connect-KFPlus** device can be deployed as a Customer Premises Equipment (CPE) in enterprise branch offices or in environments managed by the service provider.

This product must only be used indoors.

Appendix A Technical Information

A.1 Troubleshooting

The following table can help you solve problems when installing the device. If you cannot resolve the issue, please contact your dealer for more 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 router's access password.	Ignore the configuration through the RST button (as explained in the relevant section).
The *LAN switch* LED never lights up in green.	Check the Ethernet cable and the connection to the network.
The *Eth WAN* LED never lights up in green.	Check the Ethernet cable and the connection to the network. Check the appropriate license is available for use.
The *Wi-Fi* LED never lights up in green.	Check the router configuration and that of the remote station(s). Check the appropriate license is available for use.

A.2 Updating the software

The **Teldat Connect-KFPlus** router can be updated to new versions. Please contact your dealer for further details on new releases.

There are several 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**, which contains all the files needed to update your device and in-depth information on their content.

The embedded access point (if available) can also be updated to new versions. Please contact your dealer for further details on new releases for the embedded access point.

A.3 Connecting to the device

A.3.1 Connecting using the local console (Aux connector)

The **Teldat Connect-KFPlus** router has a RJ45 female connector on the front panel, known as **Aux**, which provides access to the device's local console.

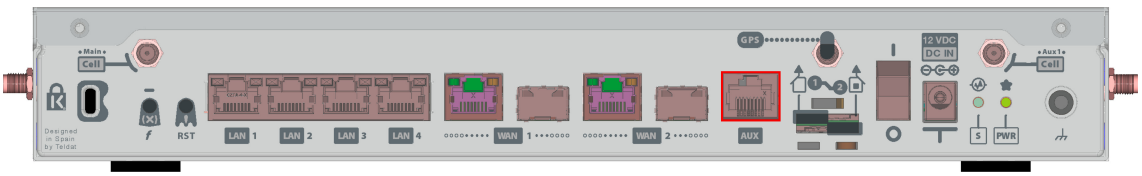


Fig. 14: **Aux Connector**

To configure this, you must connect the **Aux** port to an asynchronous terminal (or to a PC with terminal emulation).

Note

The configuration for the terminal must be:

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

Connection to the configuration port can be carried out using the the RJ45 connector cable, supplied with the device, and an RJ45 female-DB9 female adapter (also provided).

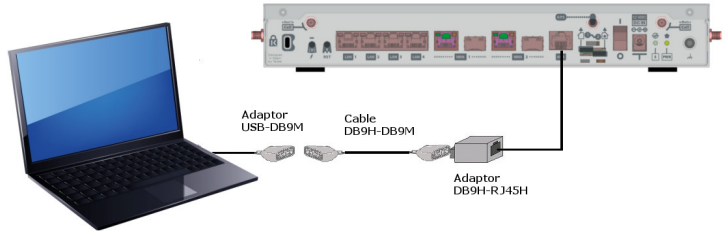
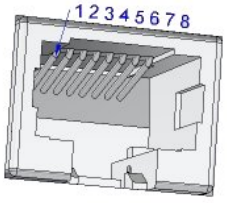


Fig. 15: **Connecting for Configuration**

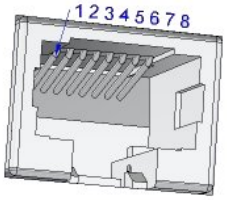
For further information, please see manual: "Teldat *Dm704-I Configuration and Monitoring*".

A.4 Connectors

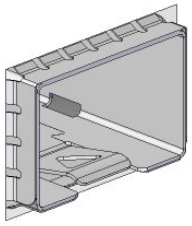
A.4.1 LAN Connector (Switch)

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.4.2 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.4.3 WAN SFP Connector

SFP	
	Standard SFP connector

A.4.4 WWAN Connector

Devices equipped with this interface have up to four SMA female connectors installed.

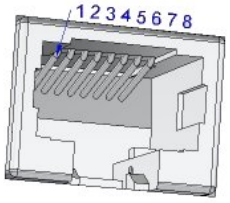
SMA Female	PIN	ANT
	**Internal**	RF in/out
	External	GND

A.4.5 GPS Connector

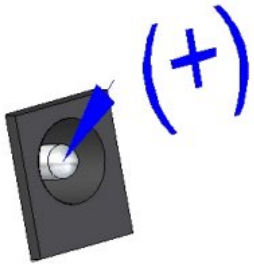
Devices equipped with this interface have one SMA female connector installed.

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

A.4.6 Configuration Connector

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

A.4.7 Power Supply Connector

Jack 5.5/2.5mm	PIN
	Internal -> POSITIVE External -> NEGATIVE

A.5 Technical Specifications

A.5.1 Hardware Architecture

PROCESSORS	Freescale QorIQ.
MEMORY	256 MBytes in SDRAM.
STORAGE UNIT	FLASH Memory (32 MBytes).

A.5.2 LAN Interface

PROTOCOLS	Ethernet (802.3).
PORTS	4 port switch managed with MDI/MDX auto-detection.
SPEED	10/100/1000 Mbps (Base-T).
CONNECTOR	RJ45 female.

A.5.3 WAN Base-T Interface

STANDARDS	Ethernet (802.3).
SPEED	10/100/1000 Mbps (Base-T).
CONNECTOR	RJ45 female.

A.5.4 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.5.5 Wireless WAN interface

WWAN Standard/Bands	Not used by the router.
CONNECTOR	Five SMA connectors, not used by the router.
SIM Slots	2 Mini-SIM (2FF), not used by the router.
ANTENNA	Not used by the router.

A.5.6 GPS interface

STANDARDS	Not used by the router.
GNSS	Not used by the router.
SATELLITE CHANNELS	Not used by the router.
CONNECTOR	SMA female.
ANTENNA	Not used by the router.

A.5.7 Wireless LAN Interface (Radio 1)

WLAN standards	802.11b; 802.11g; 802.11n (MIMO 2x2) 2.4 GHz
Frequency bands 2.4 GHz in-door/outdoor (EU)	2.4 GHz Indoor/Outdoor (2412-2484 MHz) max. 100 mW EiRP (20dBm).
WLAN modes	2.4 GHz Operation: 802.11b only; 802.11g only; 802.11b/g; 802.11b/g/n; 802.11g/n.
Modulation Techniques	OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM.
Automatic Rate Selection (ARS)	Available.
Transmission rate	Automatic.
Data rates	802.11b/g: 11, 5.5, 2 and 1 Mbps (DSSS modulation); 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation). 802.11n (20 MHz channel bandwidth): MCS0-15 allow up to 150 Mbps PHY rate at 20 MHz channel bandwidth, 2 streams, short guard interval. Up to 173.3 Mbps (QAM-256) with clients that support QAM-256. 802.11n (40 MHz channel bandwidth): MCS0-15 allow up to 300 Mbps PHY rate at 40 MHz channel bandwidth, 2 streams, short guard interval. Up to 400 Mbps (QAM-256) with clients that support QAM-256.
Short guard interval (802.11n)	On/off switchable; increase of throughput by reducing the guard intervals from 800ns to 400ns.
Output power limitation	Adjustable.
Output Power @ 2.4 GHz	Max. 16,35 dBm.
Bandwidth (802.11n)	20 MHz / (40MHz with coexistence check under preparation).
Antenna	Integrated directional dual-band MIMO array with 3.65 dB peak gain @ 2.4 GHz.

A.5.8 Wireless LAN Interface (Radio 2)

WLAN standards	IEEE 802.11ac/an; MU-MIMO 2x2; 20/40/80 MHz; 5 GHz
Frequency bands 5 GHz indoor (EU)	5 GHz indoor (5150-5350 MHz) max. 200 mW EiRP allowed
Frequency bands 5 GHz outdoor (EU)	5 GHz outdoor (5470-5725 MHz) max. 1000 mW EiRP allowed
WLAN modes	5 GHz Operation: 802.11a only; 802.11a/n; 802.11n.
Modulation Techniques	OFDM: BPSK, QPSK, DBPSK, DQPSK,16-QAM, 64-QAM, 256-QAM.
Automatic Rate Selection (ARS)	Available.
Transmission rate	Automatic.
Data rates	802.11a,h (5 GHz): 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation). 802.11n, 20 MHz channel bandwidth: MCS0-15 allow up to 150 Mbps PHY rate at 20 MHz channel bandwidth, 2 streams, short guard interval. 802.11n, 40 MHz channel bandwidth: MCS0-15 allow up to 300 Mbps PHY rate at 40 MHz channel bandwidth, 2 streams, short guard interval. 802.11ac, 20 MHz channel bandwidth: Allow up to 173 Mbps PHY rate with two streams or up to 87 Mbps PHY with one stream. 802.11ac, 40 MHz channel bandwidth: Allow up to 400 Mbps PHY rate with two streams or up to 200 Mbps PHY with one stream. 802.11ac, 80 MHz channel bandwidth: Allow up to 867 Mbps PHY rate with two streams or up to 433 Mbps PHY with one stream.
Short guard interval (802.11n)	On/off switchable; increase of throughput by reducing the guard intervals from 800ns to 400ns.
Output power limitation	Adjustable.
Output power @ 5 GHz	Max. 18,12 dBm (200mW EiRP).
Bandwidth (802.11ac)	20/40/80 MHz.
Antenna	Integrated directional dual-band MIMO array with 4.88 dB peak gain @ 5 GHz.

A.5.9 Configuration Interface

LOCAL TERMINAL	RS-232 9600-8-N-1 without flow control.
CONNECTOR	RJ45 female on the rear panel.

A.5.10 Power Supply

INPUT VOLTAGE	+12V DC.
INPUT CURRENT	2.1 A.
CONNECTOR	Jack 5.5/2.5 mm.

A.5.11 Dimensions and weight

TYPE	Desktop / chassis for a 1 U high Rack mount enclosure.
L x W x H	310 x 197 x 45 mm.
WEIGHT	2.04 Kg.

A.5.12 Environmental Specifications

TEMPERATURE	OPERATING NORMALLY: 0 ºC to 45 ºC. STORED: -25 ºC to 70 ºC.
RELATIVE HUMIDITY	5 % to 90 %.

Appendix B CE Radio Information

This section includes some of the European radio frequencies that comply with the CE regulatory requirements. Customers may obtain additional country-specific bands upon request.

B.1 WI-FI specifications

This product is supplied with internal antennas.

Technology: WLAN 802.11a/b/g/n/ac.

Frequency Range	802.11b/g/n-HT20: 2412 ~ 2472MHz; 802.11n-HT40: 2422 ~ 2462MHz; 802.11a /n-HT20/ac-VHT20: 5180~5240 MHz, 5260~5320 MHz, 5500~5700 MHz; 802.11n-HT40/ac-VHT40: 5190~5230 MHz, 5270~5310 MHz, 5510~5670 MHz; 802.11ac-VHT80: 5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz.
Number of Channels	802.11a/n-HT20/ac-VHT20: 19 802.11n-HT40/ac-VHT40: 9 802.11ac-VHT80: 4
Type of modulation	**2.4 GHz:** 802.11b: DSSS 802.11g/n: OFDM. **5.0 GHz:** 802.11a/n/ac: OFDM.