



## Teldat Router G1N

### Installation Manual

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## I Important Information



### Caution

The manufacturer reserves the right to make changes and improvements to the appropriate features in both the software and hardware of this product, modifying the specifications of this manual without prior notice.

The images presented on the front and back panels of the devices are provided as information guideline only. Some small modifications may exist in the actual device.



### Warning

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.

This device contains elements that are sensitive to electrostatic surges and shocks. Therefore, it is essential when handling the equipment that an antistatic wriststrap is connected to the device chassis and that this is placed on an antistatic mat. Furthermore, it is crucial to avoid any kind of contact between the device components and necklaces, bracelets, rings, ties etc.

# Chapter 1 Description

## 1.1 Introduction

The **Teldat G1N** routers family is composed of a range of IP routers for general purposes with a wide application area: personal environments, SOHO/SME and corporate. The **Teldat G1N** is an additional member of this family.

The main characteristic of this router family lies in the possibility in accessing data networks through cellular or mobile telephony technologies. The **Teldat G1N** routers are suitable for a wide variety of IP scenarios: from providing simultaneous access to Internet for private LAN users to the adaptation of teleprocess networks. Their most common applications are:

- Access router
- Backup for LAN networks

The **Teldat G1N** range gives answer to access needs for cellular technologies (GPRS, GPRS, and EDGE). This range incorporates a four port Ethernet LAN Switch for local area networks (LAN) and can incorporate a Wireless LAN MINI-PCI Module.

This manual will show you how to install and connect these devices.



*Fig. 1: Teldat G1N: External aspect*

## Chapter 2 Installation

### 2.1 Connections



#### Caution

Before connecting the router please read the following instructions carefully!

#### Workplace Conditions. Main Characteristics

- Excessive cold and heat should be avoided, as should humidity and dust.
- Direct exposure to sunlight should be avoided as well as other heat sources. 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 as follows:

To Connect	To Disconnect
Make sure that the device's power supply switch is in the OFF position	Turn the power switch to the OFF position
Make sure that the power supply is not connected either to the main electricity source or to the device	Disconnect the power supply from the main electricity source
Connect all data cables	Disconnect the power supply to the device
Connect the power supply to the device	Disconnect the data cables
Connect the power supply to the main electricity source	
Turn the power supply switch to the ON position	

#### 2.1.1 Power Source Connection

The **Teldat G1N** router is powered with an external AC/DC source.

To avoid electric shocks, residual current circulation and other unwanted effects, also affecting 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.); 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.



Fig. 2: Power supply connection with external source

To connect the power source to the device, follow the steps listed in the earlier table: ensure that the switch is OFF (0) and the power supply is NOT connected to the main electricity supply; find the 12 V DC connector, located on the rear panel of the device, and plug it into the power source.

## 2.1.2 Data Connection

The **Teldat G1N** router family has the following available connectors. Some of these connectors may not be available depending on the model:

### SWITCH:

The **Teldat G1N** routers can incorporate a 4 port Switch, 10/100BaseT with automatic MDI/MDIX to connect to a local area network (LAN); this device has a 100 LED indicating connection at 100 Mbps and a 10 LED indicating connection at 10 Mbps.

Please pay careful attention to the labeling to avoid confusing this switch with other types of ports.

This is available depending on the model.



Fig. 3: LAN Switch ports (4)

## 2.1.3 Connecting the WWAN antenna

The **Teldat G1N** routers have one connector in order to connect the WWAN antenna. To assemble and dismantle the antenna, simply screw them to the connectors labeled WWAN main, which is located on the rear of the device.

Antenna installation is essential in the **Teldat G1N** routers in order to improve the quality of the signal received and transmitted by the Wireless WAN module (GSM).



### Note

To obtain optimum performance, the router should always have the WWAN antenna installed.

The device must have the corresponding software license installed to ensure the Wireless WAN inter-



face is operative.

The following image shows you where to locate the antenna connector.



**Fig. 4: Antenna connector for Wireless WAN**

In order to achieve optimum features, the installed radio frequency accessories (antenna and cables) should be those recommended by Teldat.

Teldat has a series of accessories (90° mount antennas, exterior antennas, ceiling antennas, extension cables, etc.) enabling the **Teldat G1N** routers to be installed in different locations.

### 2.1.3.1 Positioning the antenna

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

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

In order to achieve the best coverage, carry out the following instructions:

- Whenever possible, place the antenna where there are no physical obstacles. Obstacles between the antenna and the base station degrade the wireless signal. Situate the antenna above ground level and ensure that it is suitably orientated towards the nearest base station.
- Density of materials also affects the antennas. Place them away from any type of wall, metal screens, mirrors, etc.
- Do not place the antenna near columns that can produce shadow areas and reduce the coverage zone.
- Keep the antenna away from metal pipes such as canals, air-conditioning, etc.
- Please bear in mind that other wireless devices such as telephones, microwaves, etc., can temporarily interfere with the quality of the wireless signal.
- We do not recommend that you install the antennas near or between racks containing communication devices, computers, etc. Use an extension cable and position the antenna outside.

The following recommendations are applicable to all wireless devices:

- Do not touch or move the antenna while the device is transmitting or receiving.
- Do not touch any equipment that contains devices which 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 in other devices. Do not use the device in areas where medical equipment is installed.
- In order to ensure that you are complying with the R&TTE 1999/5/EC norm, the device must be at least 15 cm away from any person when operating.

## 2.1.4 Connecting to the WLAN antenna

The **Teldat G1N** router has two connectors for an external antenna. This improves the quality of the signal received and transmitted through the Wireless LAN module. This module is optional; your device may not have Wireless LAN and, consequently, no antennas. To assemble and disassemble the antennas, simply screw them into the connectors labeled WLAN located on the rear of the device.



Fig. 5: Antenna connectors for the Wireless LAN

So that the Wireless LAN interface is operative, the device must have a plug-in Wireless LAN card and the corresponding software license. Depending on the model, the antennas could be an original factory setting. If your device does not have the Wireless LAN module incorporated, you can obtain this later on. The manual accompanying this module will indicate how to install it in the device, together with the corresponding antenna cables.

## 2.1.5 Connecting for configuration

The **Teldat G1N** routers have a RJ45 female connector on the front panel referred to as “**Conf.**” which provides access to the device local console. In order to configure this, you must connect the “**Conf.**” port to an asynchronous terminal (or to a PC with terminal emulation).

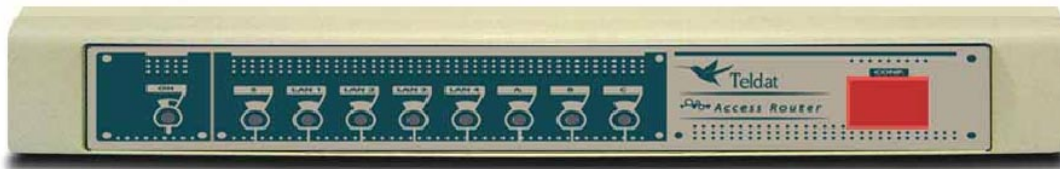


Fig. 6: Teldat G1N configuration connector



### Note

Configuration for the terminal must be as follows:

- 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 RJ45 connectors cable, provided with the device, together with the RJ45 Female-DB9 Female adapter also provided with the device. In cases where the terminal has DB25 connectors, you will need to use an additional adapter.

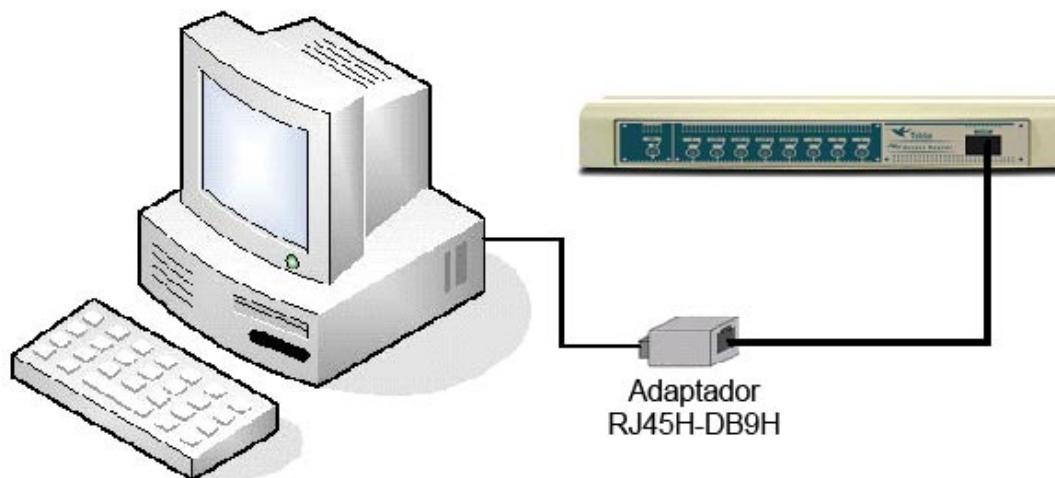


Fig. 7: Connections for the configuration

## 2.2 Installing the SIM card

The **Teldat G1N** routers have a Wireless WAN interface that, in order to operate, may require at least one SIM card that must be inserted into the device.

The **Teldat G1N** routers have two SIM trays. One is accessible from the outside and the other is located inside the device.

You must always insert at least one SIM card. When only one SIM card is going to be used in these devices, it can be inserted into either of the two SIM trays. However you must remember that you will need to suitably configure the router so it selects the appropriate tray.



### Warning

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

Always disconnect the device from the main power supply before inserting the internal SIM.

Always disconnect the device before removing the casing to get to the internal SIM.

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

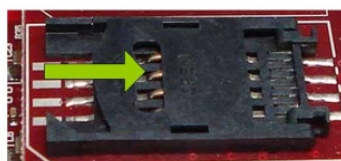
Do not touch the SIM card connectors.

### 2.2.1 Installing the internal SIM

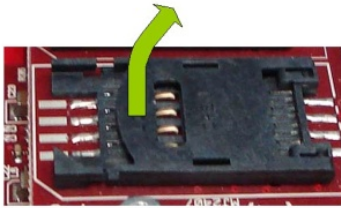
To access the internal SIM you need to open the upper casing of the device. To do this you need to undo the four screws which are on the underside of the device. You'll find the tray just below the WWAN antenna connector and situated on the device's main motherboard.

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

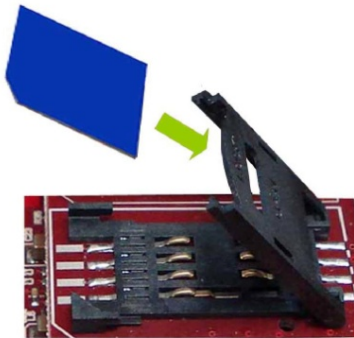
- (1) Push the fastening to the right (OPEN) until the tray is released.



- (2) Open the upper part of the tray.



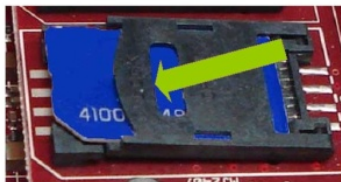
- (3) Fully insert the SIM card using the guides.



- (4) Return the tray to its original position.



- (5) While pressing on the tray, push the fastening towards the inside of the tray (LOCK).



- (6) The card should be completely held by the tray.



## 2.2.2 Installing the external SIM

The external SIM tray is located on the rear of the device. The following figure shows where you can find it.



Fig. 8: External SIM tray

Procedure:

- Place the device as indicated in the above figure.
- Extract the tray. The tray is located in the red colored slot you can see in the above figure (SIM CARD).
- To extract it, press the yellow button located on the right of the slot by using a pointed object such as a ballpoint as shown in the following figure.

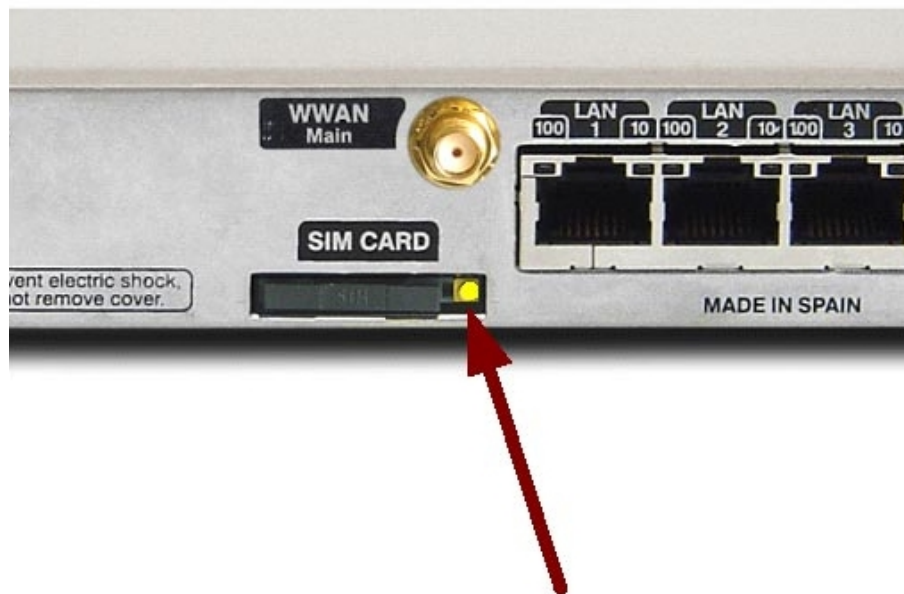


Fig. 9: Extracting the external SIM

- In order to insert the SIM card, first place it in the tray.
- If the tray already has a SIM card, you need to extract it by pushing the circular hole underneath the tray.
- Subsequently, you need to place the SIM on the tray so that its connectors can be seen; these are normally a gold color. In addition, you must make sure that the tray notch coincides with the SIM notch.
- Then insert the tray in the slot using the guides.

## Chapter 3 Meaning of the LEDs

The following figure shows the positions of the LEDs on the front panel of the device:

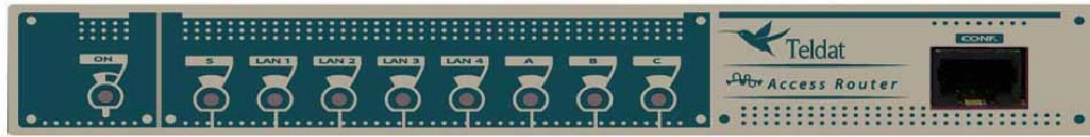


Fig. 10: Teldat G1N: Front panel

<b>ON</b>	Power-on indicator. It lights up when connected to the power.
<b>S</b>	Router operations <b>OFF:</b> System stopped. <b>GREEN:</b> System initialized and operating. <b>YELLOW:</b> System with Telnet session established.
<b>LANx</b>	Ethernet LAN switch interface: <b>OFF:</b> Interface not supported or not available. <b>RED:</b> Interface active, there isn't an active connected device. <b>GREEN:</b> Interface active, there is an active connected device. Flashing: "heartbeat"
<b>A</b>	Wireless WAN interface channel 0 (cellular0/1). <b>OFF:</b> Interface not available or not installed (not supported). <b>RED:</b> Interface not established, there is no data connection. <b>YELLOW:</b> Registered in the SIM carrier Network. <b>GREEN:</b> Communications established.
<b>B</b>	Wireless WAN interface channel 1 (cellular1/1). <b>OFF:</b> Interface not available or not installed (not supported). <b>RED:</b> Interface not established, there is no data connection. <b>YELLOW:</b> Registered in the SIM carrier Network. <b>GREEN:</b> Communications established.
<b>C</b>	The device has a MINI-PCI slot where a Wireless LAN daughter card can be installed. <b>OFF:</b> Interface not available or not installed (not supported). <b>RED:</b> Interface not established, there is no data connection. <b>YELLOW:</b> Connecting. <b>GREEN:</b> Communications established.

## Chapter 4 Microswitches

The **Teldat G1N** router has a block of 8 microswitches available that are used for maintenance and test tasks. In this case, they are only used to load the default configuration.

This block of microswitches can be found on the underside of the **Teldat G1N** routers.

These switches should not be handled by the user except to establish the default configurations.



### Note

In order for the device to operate correctly, all the microswitches must be in the OFF position.

### 4.1 Procedure to ignore the configuration

This procedure is applied if you have to discard the whole configuration of the device, for example, if you cannot remember the password.

The procedure is as follows:

- (a) Turn off the device through the ON/OFF switch.
- (b) Using a screwdriver move microswitch '5' to the ON position.
- (c) Turn the device on with the ON/OFF switch.

When the device is switched on, a message similar to the one shown below will appear on the configuration console:

```
*****
*****
*****

BOOT CODE VERSION: 03.02 Apr 28 2009 11:25:37
  gzip Apr 28 2009 11:19:34
P.C.B.: C8 MASK:0C10 Microcode:00E1
START FROM FLASH
BIOS CODE DUMP.....
BIOS DATA DUMP....
End of BIOS dump

BIOS CODE VERSION: 03.02
CLK=262144 KHz BUSCLK=65536 KHz PCICLK=32768 KHz L1
Date: 05/25/09, Monday      Time: 13:37:06

SDRAM size: 64 Megabytes
  BANK 0: 64 Megabytes (detected)
I_Cache: ON
D_Cache: ON Write-Back
FLASH: 16 Mb.
NVRAM: 128 Kb.
EEPROM: 2048 Bytes.
DPRAM: 8192 Bytes.
SWITCH 10/100
SECURITY ENGINE
PCI device: Host bridge
  (Bus: 0, Device: 0, Function: 0)
  (Vendor: 0x1057, Device: 0x18C1)
  (Subs. Vendor: 0x0000, Subs. Device: 0x0000)
```

```

Slot 1 - PCI device: serial bus controller
  (Bus: 0, Device: 10, Function: 0)
  (Vendor: 0x1131, Device: 0x1561)
  (Subs. Vendor: 0x5444, Subs. Device: 0x2800)
Slot 1 - PCI device: serial bus controller
  (Bus: 0, Device: 10, Function: 2)
  (Vendor: 0x1131, Device: 0x1562)
  (Subs. Vendor: 0x5444, Subs. Device: 0x2800)
Slot 2 - PCI device: Ethernet controller
  (Bus: 0, Device: 29, Function: 0)
  (Vendor: 0x168C, Device: 0x0013)
  (Subs. Vendor: 0x185F, Subs. Device: 0x1012)
Current production date: 09 21
Current software license: 20 12
S/N: 682/00100
BIOS MAC Add: 00-a0-26-c8-00-64
>>
.....
TRYING APP CODE DUMP
  (CONFIGURED) APPCODE1.BIN ver.: 0.10.7.32 0.0.0.0
.....
.....
.....
APP DATA DUMP .....
Running application
Default configuration used
Parsing text mode configuration ...
Configuration parsed
Initializing

Press any key to get started

```

On reaching this point, you can set microswitch '5' in the OFF position (you don't need to turn off the device). This way, the next time you restart the device, the saved configuration is adhered to.



## Appendix A Technical Information

### A.1 Troubleshooting

Below, you will find a table, which will help you to solve problems during the installation of the device. If you cannot resolve the problem, please consult your distributor for additional information.

Symptom	Solution
None of the LEDs lights up on the device.	Check the power supply to the device (power source, ON/OFF switch, main power outlet).
The S LED does not light up.	Check that all the microswitches are in the OFF position.
The LAN LED does not light up in green.	Check that the LED after the LINK is lit up; if it isn't, check the Ethernet cable and the network connection (it may be that you need a crossover cable).
LED A remains lit up in red.	Check that the SIM card has been inserted correctly, or Check that the SIM PIN is correct or Check that the antenna is properly installed (been screwed in correctly) or Get your technical service to check that the device is in the optimum position for the service.

### A.2 Upgrading the software

The **Teldat G1N** router family can be updated to new releases. Please consult your distributor for further details on new releases.

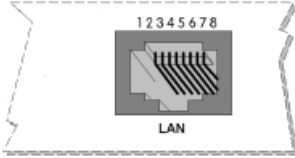
There are various ways to upgrade a Teldat router.

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


The **Teldat G1N** router incorporates independent modules for the Wireless WAN interface. You can use modules from various manufacturers, or even various modules from the same manufacturer, depending on the technology used. Generally the modules' firmware is independent of the device's software. There is an UPGRADE file for each Wireless LAN module. Please ask your distributor for the correct upgrade file for the module in your device. The GPRS interface manual (Dm 747-1) explains how to upgrade the module.

### A.3 Connectors


### A.3.1 LAN Connector

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

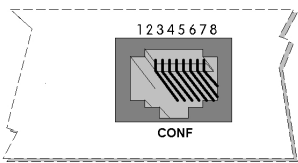
### A.3.2 WWAN Connectors

	PIN	ANT
		
	Internal	RF in/out
	External	GND

### A.3.3 WLAN Connectors

	PIN	ANT
		
	Internal	RF in/out
	External	GND

### A.3.4 Configuration Connector

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

## A.4 Technical Specifications

### A.4.1 Hardware Architecture

PROCESSORS	Motorola PowerPC MPC8xx
MEMORY	32/128 Mbytes in SDRAM
STORAGE UNIT	FLASH Memory (8/32Mbytes) EEPROM 2 Kbytes, NVRAM 128 Kbytes

### A.4.2 LAN Interface

PROTOCOLS	Ethernet (802.3)
SPEED	SWITCH 10/100 Mbps (BaseT)
CONNECTOR	RJ45 female

### A.4.3 Wireless WAN Interface

STANDARDS	GSM, GPRS, EDGE
CONNECTOR	RF SMA Female
ANTENNA	Please see the manual on the antennas for Cellular and GPRS interfaces.

### A.4.4 Wireless LAN Interface

STANDARDS	Please see the manual on Wireless LAN
SPEED	Please see the manual on Wireless LAN
CONNECTOR	2 RF SMA Female

#### A.4.5 Configuration Interface

LOCAL TERMINAL	V.24 9.600-8-N-1- without flow control.
CONNECTOR	RJ45 female, on the rear panel of the device.

#### A.4.6 Power Supply

INPUT VOLTAGE	+12 V DC
INPUT CURRENT	1,5 A
MAXIMUM POWER	18 W

#### A.4.7 External Power Source

INPUT VOLTAGE	100-240 V AC
INPUT CURRENT	0,4 A
INPUT FREQUENCY	50-60 Hz
MAXIMUM POWER	16 W

#### A.4.8 Dimensions and Weight

TYPE	Desktop.
LENGTH x WIDTH x HEIGHT	220 x 220 x 30 mm
WEIGHT	0,9 kg

#### A.4.9 Environmental Specifications

AMBIENT TEMPERATURE	ON: 5° to 45 °C. OFF: -20° to 60 °C
RELATIVE HUMIDITY	ON: 8 % to 85%. OFF: 5 % to 90 %

## Appendix B Safety information

### B.1 Recycling and the Environment





Please do not, under any circumstances, throw away any **Teldat G1N** with normal domestic waste. Ask your local town hall for information on how to correctly dispose of them so protecting the environment against e-waste. Always respect the current laws regarding waste material. Anyone found violating the environmental laws will be subject to fines and any additional steps established by law.

All the packing materials i.e. the cardboard box, plastic and any other packaging together with the pieces making up a **Teldat G1N** must be recycled complying with the current active laws regarding recycling materials.

The below symbol with a cross over the rubbish container can be seen on the device. This means that when a device reaches the end of its life, it must be taken to the official recycling/disposal centers where it must be disposed of in an environmentally responsible manner and separately from normal domestic waste.



## B.2 Translated Safety Warnings

	<p>The equipment is intended to be installed by Service Personnel and only handled by qualified personnel. If not, the device may be damaged and malfunction.</p>
	<p>El equipo está diseñado para ser instalado por personal del servicio técnico y su manejo debe realizarlo personal cualificado. De lo contrario, el equipo puede resultar dañado y quedar inservible.</p>
	<p>This device contains elements that are sensitive to electrostatic surges and shocks. Therefore, it is essential when handling the equipment that an antistatic wriststrap is connected to the device chassis and that this is placed on an antistatic mat. Furthermore, it is crucial to avoid any kind of contact between the device components and necklaces, bracelets, rings, ties, etc.</p>
	<p>Este equipo contiene componentes sensibles a las sobrecargas y descargas electroestáticas. Por eso, durante la manipulación del equipo, utilice una pulsera antiestática conectada al chasis del equipo y colóquelo sobre una esterilla antiestática. Evite también el contacto de colgantes, pulseras, anillos, corbatas, etc. con cualquier componente del equipo.</p>
	<p>The electric current in power cables, telephone lines and communication cables is dangerous. To prevent electric shocks, before installing, handling or opening the equipment covers, connect and disconnect the cables following the steps set forth in <a href="#">Connections</a> on page 3.</p>
	<p>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 el apartado "Conexiones".</p>
	<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>Never install the SIM card when the device is switched on.</p> <p>Always disconnect the device from the main power supply before inserting the internal SIM.</p> <p>Always disconnect the device before removing the casing to get to the internal SIM.</p> <p>When inserting the SIM card, please protect yourself against electrostatic discharges (ESD).</p> <p>Do not touch the SIM card connectors.</p>

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No instale nunca la tarjeta SIM con el equipo encendido.

Desconecte siempre el equipo de la red antes de instalar el SIM interno.

Desconecte siempre el equipo antes de desmontar la carcasa para acceder al SIM interno.

Al insertar la tarjeta SIM, protéjase contra descargas electroestáticas (ESD).

No toque los conectores de la tarjeta SIM.