GAT NET.Writer 7000 F/ISO

MIFARE® and ISO 15693 Read / Write Station

Installation, Configuration, Operation
Document Version 1.2

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Contact

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FCC Label

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

This WEEE symbol on GANTNER products and their packaging indicates that the corresponding material must not be disposed of with normal household waste. Instead such marked waste equipment must be disposed of by handing it over to a designated electronic waste recycling facility. Separating and recycling this waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. Please contact your local authority for further details of your nearest electronic waste recycling facility.

General Warning and Safety Instructions

Dear Customer,

We congratulate you on selecting a product (appliance or software) from GANTNER Electronic GmbH. Our aim is to ensure our product operates with safety and to your complete satisfaction. To achieve this aim, please take this opportunity to familiarize yourself with the following guidelines:

1. The installation, commissioning, operation, and maintenance of the product must be carried out in accordance with the technical conditions of operation as described in the corresponding product documentation.

2. Before installing, commissioning, operating, or maintaining the product, it is essential to read the corresponding chapter of this manual and observe the instructions and information therein.

3. If there are some points which are not entirely clear, please do not take a chance. All queries can be clarified by your GANTNER representative or by ringing the GANTNER support hotline.

4. Where not otherwise specifically documented, the appropriate installation, commissioning, operation and maintenance of the product is the customer's responsibility.

5. Directly on receipt of the goods, inspect both the packaging and the product itself for any signs of damage. Also check that the delivery is complete and includes all accessories, documentation, auxiliary devices, etc.

6. If the packaging or product has been damaged in transport, or should you suspect that it may have a fault, the product must not be put into service. Contact your GANTNER representative who will resolve the problem as quickly as possible.

7. The installation, commissioning, and servicing of our products must be performed by suitably trained personnel. In particular, electrical connections must only be made by correspondingly qualified specialists. Always observe the relevant installation regulations in accordance with the national Electrical Engineers Association (e.g., ÖVE [Austrian], VDE [Germany]).

8. Where not otherwise stated, installation and maintenance work on our products must be carried out when disconnected from the power supply. This applies in particular to appliances that are normally supplied by low-voltage current.

9. It is prohibited to alter the products or remove protective shields and covers.

10. Do not attempt to repair a product after a defect, failure, or damage is detected. In addition, do not put the product back into operation. In such cases, it is essential to contact your GANTNER representative or the GANTNER support hotline.

11. GANTNER Electronic GmbH accepts no responsibility for any injuries or damage caused as a result of improper use.

12. Although care is taken and we are continuously aiming for improvement, we cannot completely exclude the possibility of errors appearing in our documentation. GANTNER Electronic GmbH therefore accepts no responsibility for the completeness or the accuracy of this manual. The right is reserved to make alterations at any time without prior notice.

13. Should you discover any fault with the product or in its accompanying documentation, or you have any suggestions for improvement, you may confidently inform your GANTNER representative or GANTNER Electronic GmbH directly.

14. We especially look forward to hearing from you if you just want to tell us that everything is functioning perfectly.

We wish you a successful experience with our product and look forward to welcoming you again as a customer soon.

TABLE OF CONTENTS

1 INTRODUCTION

1.1 About this Manual

This manual provides information on the functionality and connectivity of the GAT NET.Writer 7000 F/ISO and includes an overview of how to configure the device using GAT Config Manager software. There is a separate manual available for GAT Config Manager, which explains in greater detail all functions associated with the software.

In chapter “2 GENERAL INFORMATION", general information about the GAT NET.Writer 7000 F/ISO, the RFID technologies supported by the device and key terms used in this manual can be found.

Chapter “3 ELECTRICAL CONNECTIONS" describes how the GAT NET.Writer 7000 F/ISO is connected to a computer and how to supply power to the device.

Chapter “4 CONFIGURATION AND OPERATION" describes the different communication modes of the GAT NET.Writer 7000 F/ISO. How to configure the GAT NET.Writer 7000 F/ISO using GAT Config Manager, the various configuration settings and software integration are also explained in this section.

Chapter "5 TECHNICAL DATA" contains the relevant technical information for the GAT NET.Writer 7000 F/ISO.

Chapter "6.1 Scan Code List – English Keyboard” contains a list of scan codes for an English keyboard layout that can be added as prefix / postfix data.

1.2 Contact & Inquiries

If you have any questions concerning the GAT NET.Writer 7000 F/ISO please get in touch with your local GANTNER representative or directly with one of the GANTNER Technology branch offices. The addresses, phone and fax numbers are listed on the inner side of the manual cover.

2 GENERAL INFORMATION

2.1 Functional Description

The GAT NET.Writer 7000 F/ISO allows users to read and write information (data) from and to data carriers. Data carriers using MIFARE® and ISO 15693 technology are supported by the device. The data carrier reading platform can accommodate data carrier media of all shapes and sizes and there is also a card slot designed to hold RFID cards of standard ISO, i.e., credit card, size.

The compact and robust housing is intended to sit on a desk, or similar workstation, in a central location where the reading / writing of data carriers can be conveniently performed. In most instances the GAT NET.Writer 7000 F/ISO will be integrated with RFID system management software and operated by employees of a facility. Common tasks for employees using the GAT NET.Writer 7000 F/ISO include:

- Assigning data carriers to customers / members / employees.
- Modifying and deleting information stored on data carriers.
- Reading of lost data carrier information to determine the assigned owner.

The GAT NET.Writer 7000 F/ISO connects to a computer through its integrated USB or Ethernet port and the appropriate cabling required for these connections. The device offers the possibility to communicate with a computer via Ethernet (Figure 2.1) or USB (Figure 2.2) interface.

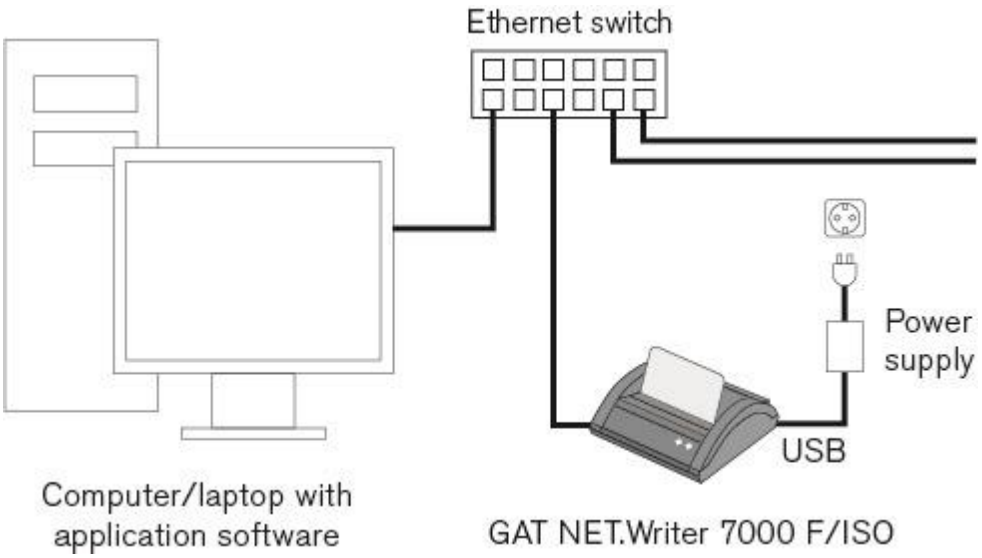


Figure 2.1 *– Communication via Ethernet interface*

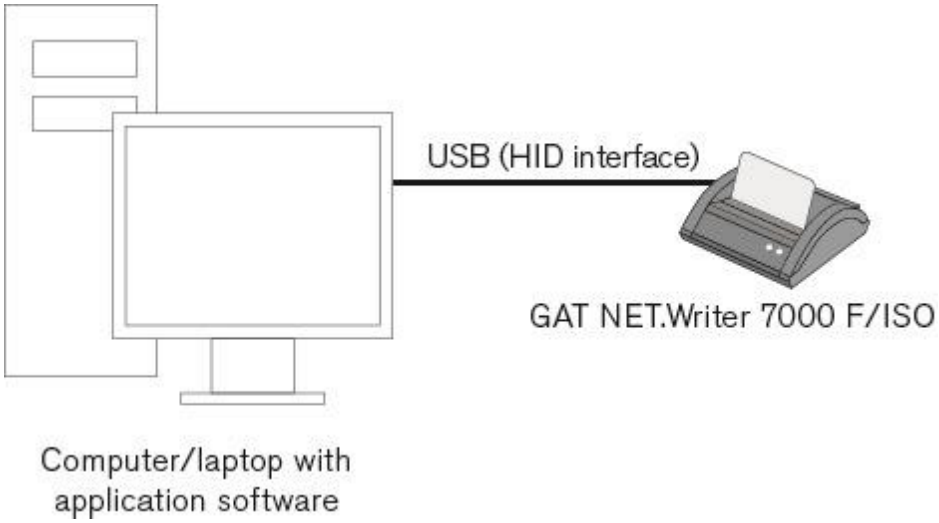


***Figure 2.2** – Communication via USB interface*

Power for the GAT NET.Writer 7000 F/ISO is always supplied through the USB port. More information on the Ethernet, USB and power connections is described in “3. ELECTRICAL CONNECTIONS”.

Once physically connected to a computer, the GAT NET.Writer 7000 F/ISO configuration settings can be viewed and changed via the TCP/IP interface using GAT Config Manager software (see section “4. CONFIGURATION AND OPERATION”).

After setup is complete, the device can be used directly with GANTNER developed software or integrated with third-party software via GAT DIRECT.Connect (see “4.11. Software Integration”).

2.2 Terminology

Several key terms are used often in this manual and are defined below.

PC / Computer
These terms refer to all desktop and laptop computers running a Microsoft Windows operating system.

Data Carrier
A data carrier is a form of identification media that is used by staff and visitors in a facility for identification. Data carriers are available in a variety of different forms such as plastic wristbands and chip cards. Data carriers are also available to suit different RFID technologies (LEGIC, MIFARE®, ISO 15693).

Device / Station / Terminal
These general terms are used interchangeably in this manual to refer to the GAT NET.Writer 7000 F/ISO and other GANTNER products used in a facility for identification (e.g., GAT Access 6xxx) or to activate a service (e.g., GAT Time 6xxx).

GAT Config Manager
GANTNER developed PC software that is used to configure GANTNER devices such as the GAT NET.Writer 7000 F/ISO. A separate manual is available and integrated into the software. While the software is open, click on the “Help” drop-down menu and select “How Do I”.

Locker
The term "locker" is used to generally describe all possible locker applications that can be fitted with a GANTNER electronic lock. Examples include, a changing room locker, a depot or a private box.

RFID (Radio-Frequency Identification)
Identification over a short distance using radio frequency. An RFID data carrier is used as identification media in GANTNER systems.

User / Visitor
The general terms "user" and "visitor" refer to the people in a facility who use data carriers and GANTNER devices. Users of the GAT NET.Writer 7000 F/ISO in a typical installation are usually employees of the facility.

2.3 RFID Technology

Identification of users by GANTNER devices within a facility is done via RFID (radio-frequency identification) technology using a frequency of 13.56 MHz. There are three different technologies available. Different letter(s) are added to GANTNER model identifiers to notify of the technology that the device supports:

- "B": LEGIC
- "F": MIFARE®
- "ISO": ISO 15693

The GAT NET.Writer 7000 F/ISO can operate with data carriers using MIFARE® and ISO 15693 technologies. It is necessary for all devices and data carriers in a facility to use the same technology. The information in this manual is applicable for the following RFID technologies that are supported by the GAT NET.Writer 7000 F/ISO.

MIFARE® (manufacturer NXP/Infineon)

- Classic
- DESFire®
- Ultralight®

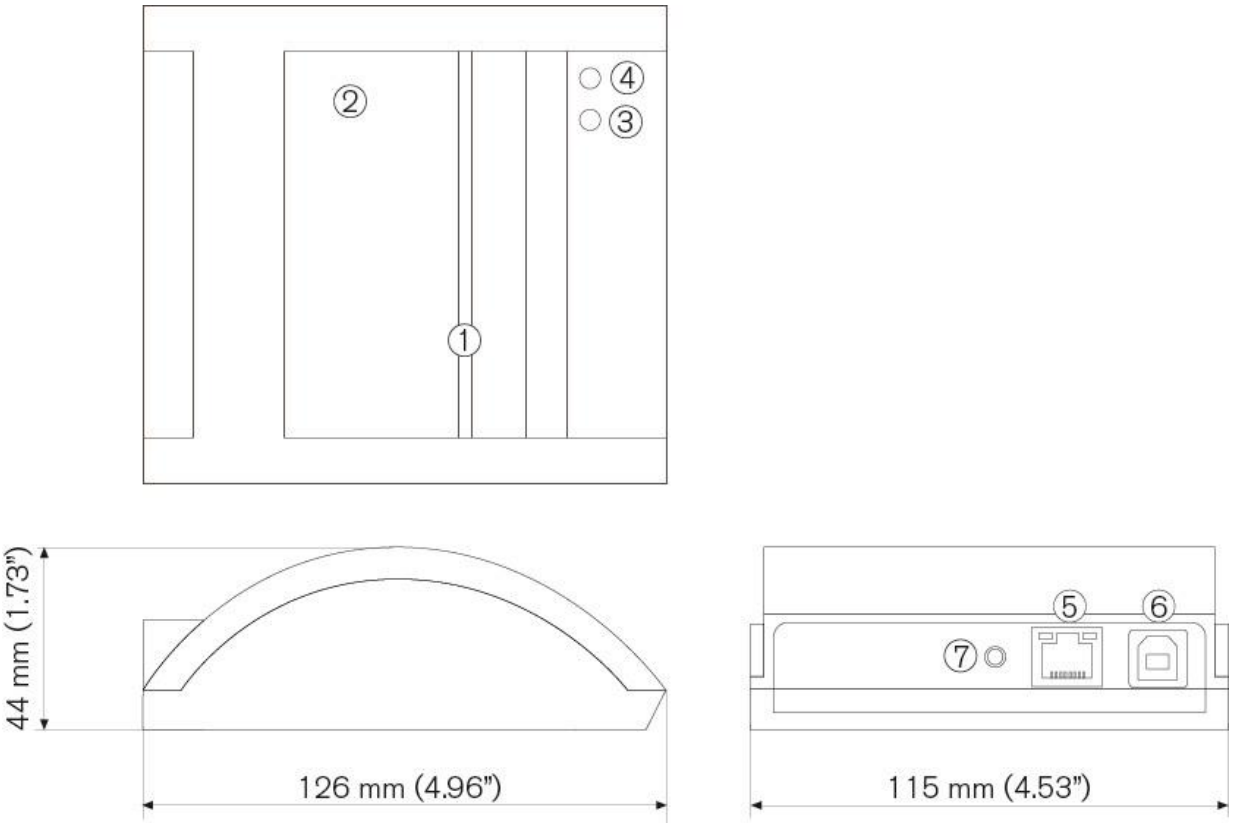
ISO 15693

- The GAT NET.Writer 7000 F/ISO is able to read and write ISO 15693 data carriers.

In addition to the different RFID technologies, data carriers are available in a variety of shapes and sizes. The GAT NET.Writer 7000 F/ISO is designed to accept these different types of data carrier media on its RFID reading platform.

2.4 Measurements

The dimensions and main components of the GAT NET.Writer 7000 F/ISO are shown in Figure 2.3 below.



1. Card slot
2. Data carrier reading platform
3. LED “red“
4. LED “green“
5. Ethernet socket
6. USB socket
7. Reset button

Figure 2.3 *– GAT NET.Writer 7000 F/ISO measurements*

3 ELECTRICAL CONNECTIONS

3.1 USB Connection

A USB type ‘B’ connection is provided at the rear of the GAT NET.Writer 7000 F/ISO (6 in Figure 2.3). A USB cable is connected from the USB type ‘B’ port on the device to the USB type ‘A’ port of a computer as shown in Figure 3.1 .

The maximum USB cable length between the GAT NET.Writer 7000 F/ISO and a computer is 5 m (16.40 ft). A 1.8 m (5.90 ft) USB cable is included with the device.

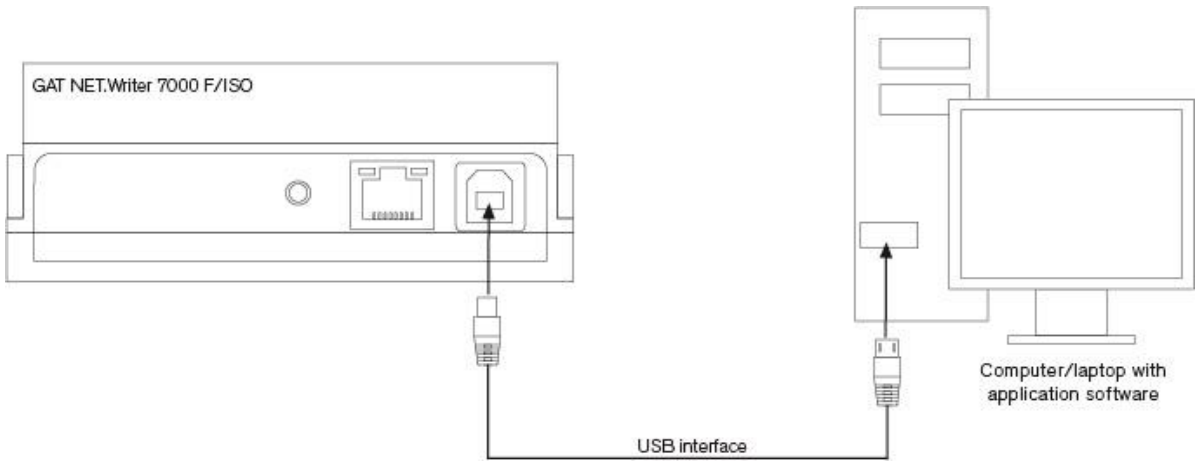


Figure 3.1 *– USB connection*

After connecting the GAT NET.Writer 7000 F/ISO to the computer, the device is automatically recognized as an HID (Human Interface Device = input device). HID drivers are included with all major computer operating systems (Windows, Mac OSX, and Linux). The GAT NET.Writer 7000 F/ISO is ready to use once the “Enable Keyboard Mode” setting has been activated in GAT Config Manager (see section “4.6.6. USB Communication Mode Setting”)

See section “4.1. USB Communication Mode” for more information on communicating via USB.

3.2 Ethernet Connection

An Ethernet connection port is provided at the rear of the GAT NET.Writer 7000 F/ISO (5 in Figure 2.3). An Ethernet patch cable with an RJ 45 plug is used to plug into this connection. The patch cable is then connected to the network, and computer(s) respectively, via an Ethernet switch as shown in Figure 3.2 .

CAT 5 cable or a higher standard must be used for all Ethernet connections.

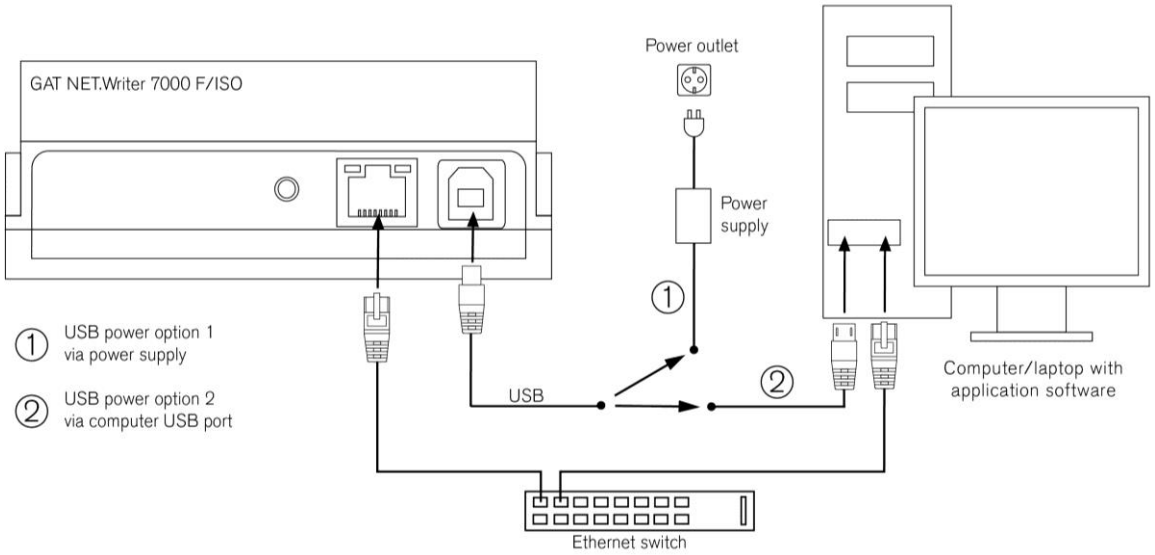


***Figure 3.2** – Ethernet connection*

See section “4.2. Ethernet Communication Mode” for more information on communicating via Ethernet.

3.3 Power Connection

Power for the GAT NET.Writer 7000 F/ISO is always supplied through the USB port (6 in Figure 2.3), regardless of whether the device is using the USB or Ethernet interface for communication.

When the GAT NET.Writer 7000 F/ISO is using the USB interface for communication, power is supplied from the computer to the GAT NET.Writer 7000 F/ISO via the USB cable as shown in Figure 3.1 An additional power supply is not required in this case.

When the GAT NET.Writer 7000 F/ISO is using the Ethernet interface for communication, an additional power source must be connected to the USB port on the GAT NET.Writer 7000 F/ISO. There are two options for this power source:

1. Connect the USB cable from the GAT NET.Writer 7000 F/ISO to the power supply (option 1 in Figure 3.2). Connect the power supply to a 110 VAC power outlet. A 1.8 m (5.90 ft) USB cable and power supply are included with the device.
2. Connect the USB cable from the GAT NET.Writer 7000 F/ISO to the USB port of a computer (option 2 in Figure 3.2).

4 CONFIGURATION AND OPERATION

4.1 USB Communication Mode

When using the USB interface to communicate with a computer, the GAT NET.Writer 7000 F/ISO functions as an input device (e.g., a keyboard) and one-way communication between the station and the computer is available. The unique number (UID) of a data carrier is read by the GAT NET.Writer 7000 F/ISO and sent to the computer (host) where it is handled in the same way as standard keyboard input data.

Note: The default (factory) setting for the GAT NET.Writer 7000 F/ISO is to operate in Ethernet communication mode. See section “4.6.6. USB Communication Mode Setting” for information on how to change this setting.

When operating in USB mode, the GAT NET.Writer 7000 F/ISO can send prefix or postfix data with the UID of a data carrier. The specified data is added to the front (prefix) or end (postfix) of the UID and sent by the GAT NET.Writer 7000 F/ISO when a data carrier is read. A common use of this function is to send an “ENTER” command as postfix data along with the UID, thereby placing the cursor on the following line after the UID is displayed on the computer screen. See section “4.6.7. Prefix / Postfix Settings” for more information.

USB communication mode also offers the possibility to send the UID number in decimal or hexadecimal format. See section “4.6.8. UID Format” for more information.

See section “3.1. USB Connection” for information on how to connect to a computer via USB.

4.1.1 USB Port Energy Saving Function

Most computer operating systems include a function that switches the USB port off to save energy after a defined period of inactivity. If this function is enabled for the USB port where the GAT NET.Writer 7000 F/ISO is connected, the GAT NET.Writer 7000 F/ISO will not operate if the USB port is deactivated.

When the USB port is activated again by the computer, the first data carrier read by the GAT NET.Writer 7000 F/ISO may be delayed by approximately 5 seconds as the GAT NET.Writer 7000 F/ISO must initialize the USB connection again. The UID of the next data carrier read by the GAT NET.Writer 7000 F/ISO will be sent instantly to the computer as normal.

The USB port energy saving function can be disabled in Windows operating systems and is found here:

Right-click on the USB port where the GAT NET.Writer 7000 F/ISO is connected and select “Properties” from the drop-down menu as shown in Figure 4.1

In the “Power Management” tab, you can configure the “Allow the computer to turn off this device to save power” option as required.

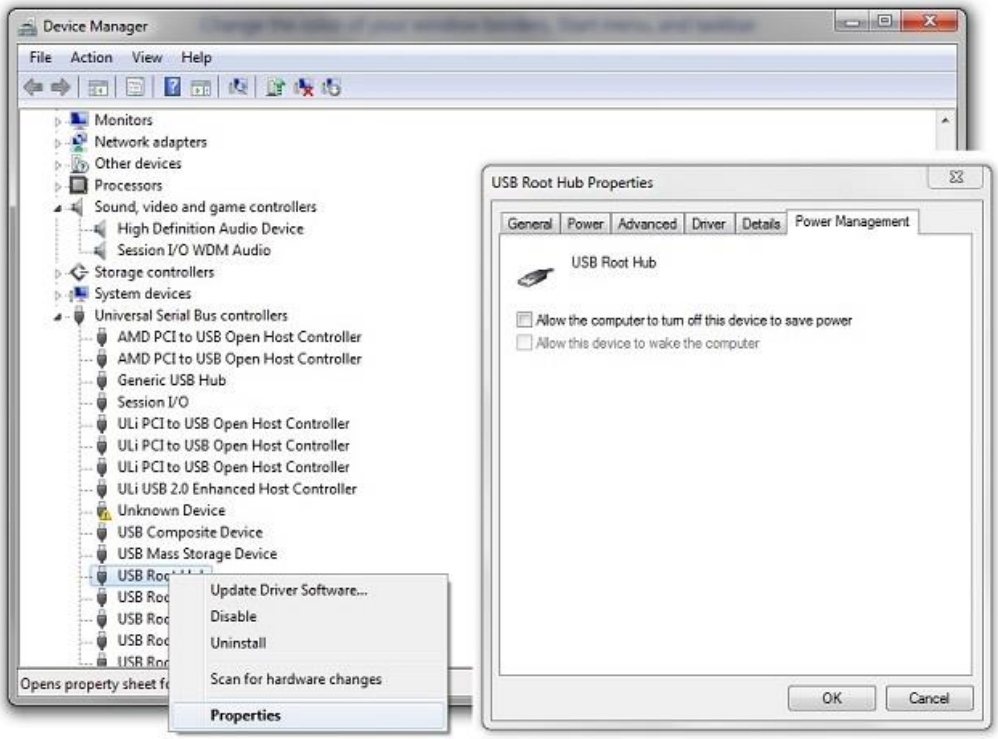


Figure 4.1 – *Configuring USB port energy saving function*

4.2 Ethernet Communication Mode

When using Ethernet to communicate with a computer, two-way data transmission between the GAT NET.Writer 7000 F/ISO and the computer is possible. As in USB mode, the GAT NET.Writer 7000 F/ISO can read data carrier information and send the data to a computer. Information, such as device configuration settings, can also be sent from the computer to the GAT NET.Writer 7000 F/ISO.

The GAT NET.Writer 7000 F/ISO can be configured so that when a data carrier is placed on the RFID reading platform, the data carrier's UID is automatically read and sent to the computer. See section "4.6.4. Automatic Reading of Data Carrier UID" for more information on how to configure this function.

Note: The automatic UID reading function is configurable when the GAT NET.Writer 7000 F/ISO is operating in Ethernet communication mode. In USB communication mode this function is permanently activated.

Ethernet communication mode also offers the possibility to automatically send data stored on the data carrier in locker segments 1 and 2. See section "4.6.5. Automatic Reading of Locker Segment Data".

See section "3.2. Ethernet Connection" for information on how to connect to a computer via Ethernet.

4.3 Setup for Configuration in GAT Config Manager

After the electrical connections for the GAT NET.Writer 7000 F/ISO are complete, configuration settings can be set using GAT Config Manager configuration software.

⚠ Configuration of the GAT NET.Writer 7000 F/ISO via GAT Config Manager is only possible using the Ethernet (TCP/IP) connection. See section “3.2. Ethernet Connection” for more information on the Ethernet connection.

Even if you intend to operate the device using only the USB connection, you must still connect to a computer using the Ethernet connection to change settings relating to how the device functions in USB mode.

Note: There is a separate manual with detailed information on each function available in GAT Config Manager. To access the manual while the software is open, click on the “Help” drop-down menu and select “How Do I”.

Complete the following steps to begin configuring the GAT NET.Writer 7000 F/ISO with GAT Config Manager.

- After installing the software, open GAT Configuration Manager via "Start" -> "All Programs" -> "GANTNER Electronic GmbH" -> "GAT Config Manager" -> "GAT Config Manager".
  - The default start window of GAT Config Manager is displayed.

- Click on the “Open Project” icon (1 in Figure 4.2) to find an existing project. Alternatively, click on the “Create Project” icon (2 in Figure 4.2) to start a new project.

***Figure 4.2**– GAT Config Manager - project setup*

- Once a project is established, click on the “Scan Device” icon (1 in Figure 4.3).
  - The software will scan the network and display a list of all connected GANTNER devices.

- Select your GAT NET.Writer 7000 F/ISO from the list. Use device details such as the IP address or MAC address to identify the correct device.
  - The selected device is highlighted in blue as shown in Figure 4.3 .

- Click on “OK” (2 in Figure 4.3).
  - The selected device is added to the “Devices” list (3 in Figure 4.3).

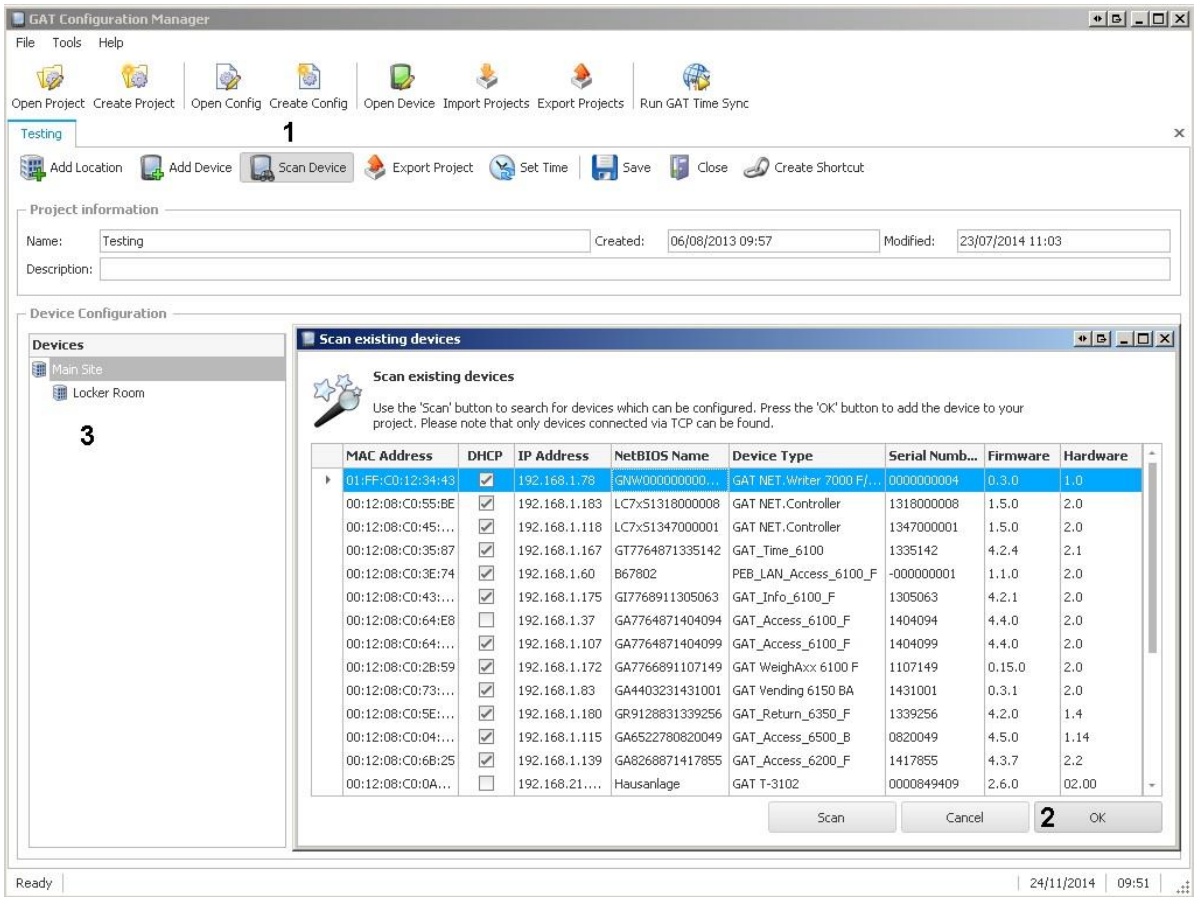


Figure 4.3 *– GAT Config Manager - scan devices*

4.4 View the GAT NET.Writer 7000 F/ISO Configuration Settings

Once a project is established in GAT Config Manager and your GAT NET.Writer 7000 F/ISO has been added to the "Devices" list, you can now view and adjust the configuration settings of the device. Complete the following steps to view the configuration settings.

- Select the GAT NET.Writer 7000 F/ISO from the "Devices" tree (1 in Figure 4.4).
    - The GAT NET.Writer 7000 F/ISO is highlighted in blue.

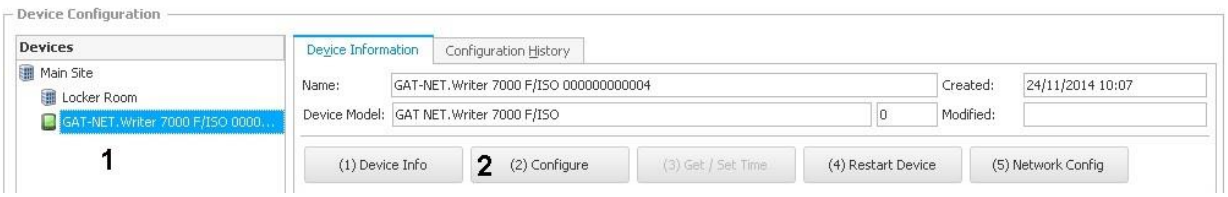


Figure 4.4 *– View configuration settings*

- Click on the "(2) Configure" button (2 in Figure 4.4).
    - The GAT Configurator window opens (Figure 4.5).

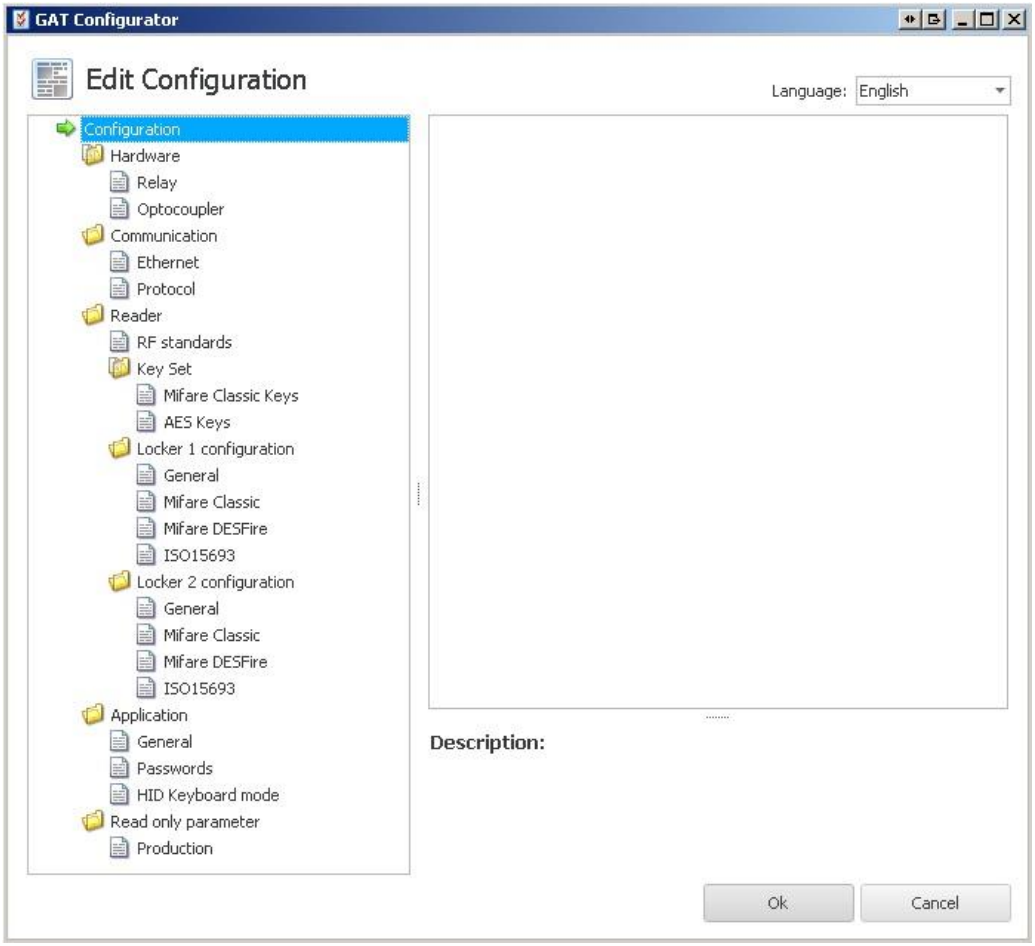


Figure 4.5 *– GAT Configurator window*

4.5 Upload Configuration Settings to the GAT NET.Writer 7000 F/ISO

When you are finished configuring the GAT NET.Writer 7000 F/ISO settings in GAT Config Manager, it is important to finalize the configuration by uploading the file to the device. Complete the following steps to upload the configuration.

- Click on “OK” in the GAT Configurator Window (Figure 4.5).
  - The confirm upload window opens (see below).

- Click “Yes” to apply the configuration to the device.
  - The new configuration settings will be uploaded to the GAT NET.Writer 7000.

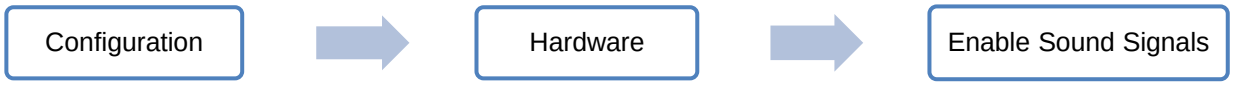
4.6 Configuration Settings of the GAT NET.Writer 7000 F/ISO

The configuration settings of the GAT NET.Writer 7000 F/ISO that can be adjusted in GAT Config Manager are explained in this section. For most applications, the majority of configuration settings will not need to be changed from their factory (default) values.

The main configuration settings are explained in detail in the following sections. A list and brief explanation of every configuration setting available for the GAT NET.Writer 7000 F/ISO can be found in section “4.7. Configuration Settings Table”.

4.6.1 Sound Signals

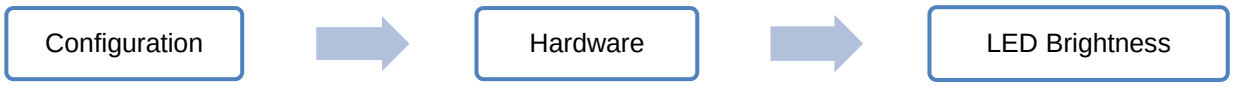
The GAT NET.Writer 7000 F/ISO has an integrated beeper that signals when data carrier read / write activity takes place. This setting can be found here:



Select / deselect the “Enable Sound Signals” option to turn the function on / off.

4.6.2 LED Brightness

The brightness level of the two LEDs that signal when device activity occurs can be adjusted. This setting can be found here:



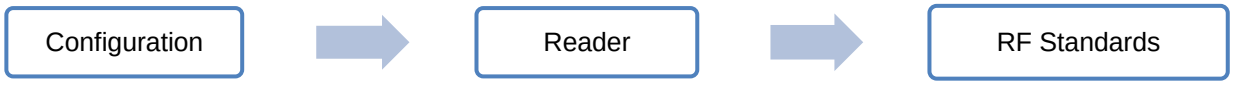
The default setting for this function is 100, which represents full brightness. Enter a value between 0 and 100 in the “LED brightness” field to adjust the LED brightness.

4.6.3 RF Standards

The GAT NET.Writer 7000 F/ISO can operate with data carriers that use ISO 15693 and ISO 14443A (MIFARE) technology.

Note: The default setting for the GAT NET.Writer 7000 F/ISO is to operate with both ISO 15693 and ISO 14443A (MIFARE) data carriers.

The setting for the GAT NET.Writer 7000 F/ISO to operate with ISO 14443A (MIFARE) data carriers cannot be changed. The setting for the GAT NET.Writer 7000 F/ISO to operate with ISO 15693 data carriers can be adjusted and is found here:



Select / deselect the “ISO 15693” option to turn the setting on / off.

4.6.4 Automatic Reading of Data Carrier UID

This function automatically sends the UID of a data carrier to a computer when the data carrier is placed on the GAT NET.Writer 7000 F/ISO.

The setting can be found here:

Configuration → Application → General → Enable Card Autoread

Select / deselect the “Enable Card Autoread” option to turn the function on / off.

4.6.5 Automatic Reading of Locker Segment Data

This function allows data stored on the data carrier in locker segments 1 and 2 to be automatically sent to the computer when the data carrier is placed on the GAT NET.Writer 7000 F/ISO.

Note: This function is only available when the GAT NET.Writer 7000 F/ISO is operating in Ethernet (TCP/IP) communication mode.

This data is usually the number of the locker locked by the data carrier. The setting can be found here:

Configuration → Application → General → Autoread Segment

Select “Locker 1”, “Locker 2”, “Locker 1 + 2”, or “None” from the drop-down menu.

4.6.6 USB Communication Mode Setting

This setting activates or deactivates USB Communication Mode. See “4.1. USB Communication Mode”.

Note: The default setting for the GAT NET.Writer 7000 F/ISO is to operate in Ethernet Communication Mode.

The setting can be found here:

Configuration → Application → HID Keyboard mode → Enable Keyboard Mode

Select / deselect the “Enable Keyboard Mode” option to turn USB Communication Mode on / off.

4.6.7 Prefix / Postfix Settings

The prefix and postfix settings allow you to add data to the front (prefix) or end (postfix) of the UID. The specified additional data will be added to the UID and displayed when the data carrier is read.

Note: This setting is only available when the GAT NET.Writer 7000 F/ISO is operating in USB Communication Mode. See “4.1. USB Communication Mode”.

The setting can be found here:

Configuration → Application → HID Keyboard mode → Prefix / Postfix

The prefix/postfix data can be entered in the correct field as scan codes. The format for the scan code is <mod,code>. “Mod” can be one of the following keys:

- 1 … Left CTRL
- 2 … Left Shift
- 4 … Left Alt

“Code” is the HID scan code of the desired key. For example:

- <2,34> = % (Left Shift and 5)
- <0,40> = % () and ENTER

The following figure shows the settings required to send an “ENTER” command after the UID number.

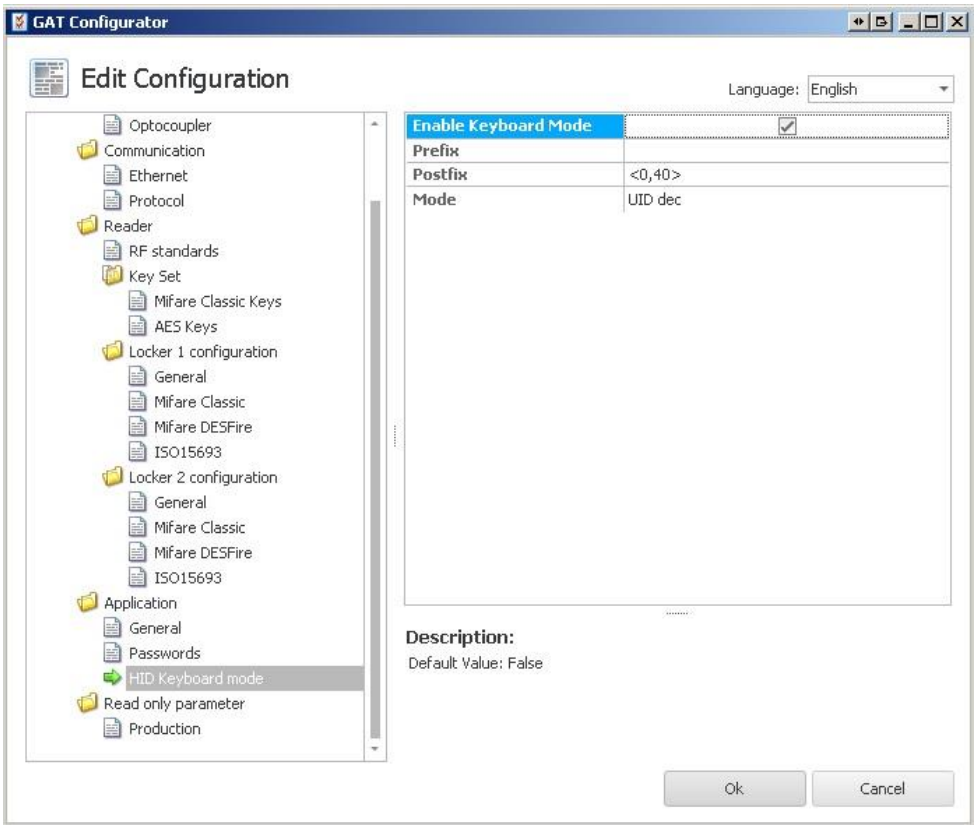


***Figure 4.6** – “ENTER” postfix settings*

Scan codes depend on the keyboard layout. The examples shown in this document are valid for an English keyboard layout. A complete list of scan codes for an English keyboard layout is available in section “**6.1**. Scan Code List – English Keyboard”.

Note: If the GAT NET.Writer is used in HID mode, the transmitted data is not displayed correctly when the shift key is pressed in at the same time on the keyboard. A pressed caps-lock key is recognized by the GAT NET.Writer 7000 F/ISO for many country-specific keyboard settings. Certainly for German country settings, it is necessary to activate the 'German shift lock' parameter in the GAT NET.Writer 7000 F/ISO configuration.

4.6.8 UID Format

The UID of a data carrier can be sent from the GAT NET.Writer 7000 F/ISO in decimal or hexadecimal format. The default setting is to display the UID in decimal format.

Note: This setting is only available when the GAT NET.Writer 7000 F/ISO is operating in USB Communication Mode. See “4.1. USB Communication Mode”.

The setting can be found here:

Select “UID dec” or “UID hex” from the drop-down menu.

4.7 Configuration Settings Table

The following table lists all the configuration settings available for the GAT NET.Writer 7000 F/ISO in GAT Config Manager.

Options	Description	Format	Default
Hardware			
Enable sound signals	Enable the integrated beeper	Boolean	True
LED brightness	Level (0 – 100) to determine the brightness of the LEDs	Integer	100
Relay	Output for activation of additional hardware		
Function	Transparent – all actions set by the host	List option	Transparent
Pulse	Duration (in ms) for how long the relay is activated	Integer	0
Optocoupler	Status input for feedback		
Function	Transparent – Only report events to host	List option	Transparent
Trigger	An event is triggered if the optocoupler input signal matches the configured setting	Boolean	Disable
Communication			
Ethernet			
Port number	Port used to communicate with the device	Integer	8000
MAC address	The MAC address of the device (cannot be changed)	Integer	
DHCP enabled	When set to “True”, the device is assigned its IP settings from a DHCP server	Boolean	True
Static IP address	IP address of the device (if DHCP is disabled)	IPv4 add.	0.0.0.0
Static subnet mask	Subnet mask of the device (if DHCP is disabled)	IPv4 add.	255.255.255.0
Static default gateway	Default gateway of the device (if DHCP is disabled)	IPv4 add.	0.0.0.0
Static DNS 1	Primary DNS address of the device (if DHCP disabled)	IPv4 add.	0.0.0.0
Static DNS 2	Secondary DNS address of the device (if DHCP disabled)	IPv4 add.	0.0.0.0
NetBIOS name	NetBIOS name of the device	Text	GW + Part No. + Serial No.
Mode	Ethernet Communication Mode: “Auto negotiate","100 MBit full duplex","100 MBit half duplex","10 MBit full duplex","10 MBit half duplex"	List option	Auto negotiate
Protocol			
TCPAck Timeout	Ethernet Detail: Force to send “Acknowledge” packets after this timeout	Integer	1000

Host Command Timeout	Maximum command response time for device requests	Integer	1000
Time Sync IP	If this is set, the device accepts time sync packets only from this host	IP add.	0.0.0.0
Reader			
RF Standards			
ISO 15693	Enable device to function with data carriers using ISO 15693 technology	Boolean	False
ISO 14443A	Enable device to function with data carriers using MIFARE (ISO 14443A) technology. Cannot be disabled.	Boolean	True
Key Set			
Site key	Site key of the device. All data carriers must have the same site key to operate with the device.	Hex	9999
Key Set	DESFire AES Keys, encrypted	Hex	
MIFARE Classic Keys			
Mf Key 1 - 6	Data for MIFARE Classic keys 1 to 6	Integer	
AES Keys			
AES Key 1 - 6	Data for AES keys 1 to 6	Integer	
Locker 1 Configuration			
General			
MIFARE Classic	Options for reading MIFARE Classic data carriers		
Sector Num	The segment where UID data is stored	Integer	4
Read Key	Select the Read Key (Key A or Key B)	List option	
Write Key	Select the Write Key (Key A or Key B)	List option	
MIFARE DESFire	Options for reading MIFARE DESFire data carriers		
Read Key Num	Number of the read key	Integer	
Write Key Num	Number of the write key	Integer	
Application ID	ID of the target DESFire application	Text	
Encryption Mode	Select the type of encryption mode	List option	
File Num	File number to read data from	Integer	
File Comm Mode	File communication mode: “Plain”, “Maced”, “Enciphered”	List option	
File Type	Type of file: “Standard” , “Backup”	List option	
ISO 15693	Options for reading ISO 15693 data carriers		
General Block Num	The segment where general data is stored	Integer	13
Certificate Block Num	The segment where certificate data is stored	Integer	15
Locker Block Num	The segment where locker data is stored	Integer	19
Locker 2 Configuration			
General			
MIFARE Classic	Options for reading MIFARE Classic data carriers		
Sector Num	The segment where UID data is stored	Integer	4
Read Key	Select the Read Key (Key A or Key B)	List option	
Write Key	Select the Write Key (Key A or Key B)	List option	
MIFARE DESFire	Options for reading MIFARE DESFire data carriers		
Read Key Num	Number of the read key	Integer	
Write Key Num	Number of the write key	Integer	
Application ID	ID of the target DESFire application	Text	
Encryption Mode	Select the type of encryption mode	List option	
File Num	File number to read data from	Integer	
File Comm Mode	File communication mode: “Plain”, “Maced”, “Enciphered”	List option	
File Type	Type of file: “Standard” , “Backup”	List option	

ISO 15693	Options for reading of ISO 15693 data carriers		
General Block Num	The segment where general data is stored	Integer	13
Certificate Block Num	The segment where certificate data is stored	Integer	15
Locker Block Num	The segment where locker data is stored	Integer	23
Application			
General			
Enable Card Autoread	Turn on / off function to automatically read data carrier information	Boolean	False
Autoread Segment	None – Do not send any locker segment data Locker 1 – Send locker 1 segment data Locker 2 – Send locker 2 segment data Locker 1 + 2 – Send locker 1 + 2 segment data	List option	None
Config Card Index	Index of the last used configuration card (reserved for future use)	Integer	0
Passwords			
Enable Login	Turn on / off the login function	Boolean	False
Password Login	Password required to log into the device	Text	
HID Keyboard Mode			
Enable Keyboard Mode	Turn on / off keyboard mode function	Boolean	False
Prefix	Field to add prefix data to the start of the UID	Text	
Postfix	Field to add postfix data to the end of the UID	Text	
Mode	UID dec – Display data carrier UID in decimal format UID hex – Display data carrier UID in hexadecimal format	List option	UID dec
Read only parameter			
Production			
Production Data	Production data for the device (set during manufacture)	Text	
Article Num	Article number of the device	Integer	
Serial Num	Serial number of the device	Integer	
Hardware Vers	Hardware version of the device	Integer	
Manufacturer Num	Manufacturer number of the device	Integer	
Production Year	Production year of the device	Integer	
Production Week	Production week of the device	Integer	

4.8 Restart the GAT NET.Writer 7000 F/ISO

In certain situations, for instance, after an error or network problem, it is helpful to restart the GAT NET.Writer 7000 F/ISO. Restarting means that the software application in the device is restarted. All device settings remain as before. Complete the following steps to restart the GAT NET.Writer 7000 F/ISO.

- Keep the RESET button (1 in Figure ***4.7***) pressed in for 5 seconds.
    - The device will restart.

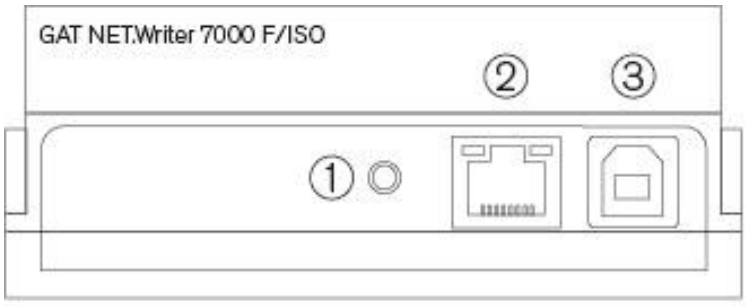


Figure 4.7 – *Reset button*

4.9 Reset the GAT NET.Writer 7000 F/ISO to Default (Factory) Configuration

The GAT NET.Writer 7000 F/ISO will operate exactly as at the time of delivery after resetting the device to the default configuration. All existing device settings will be lost. Complete the following steps to reset the GAT NET.Writer 7000 F/ISO.

- Disconnect the power supply from the GAT NET.Writer 7000 F/ISO.
- Reconnect the power supply while holding the RESET button (1 in Figure ***4.7***) pressed in.
- Keep the RESET button pressed in for approximately 12 seconds.
    - The red LED starts flashing.
- Release the RESET button.
- Press the RESET button again.
- Keep the RESET button pressed in for approximately 12 seconds.
    - The GAT NET.Writer 7000 F/ISO is now reset to the default configuration.

4.10 Uploading Firmware to the GAT NET.Writer 7000 F/ISO

4.10.1 Standard Procedure

The standard procedure for uploading firmware to the GAT NET.Writer 7000 F/ISO is via GAT Config Manager software. Complete the following steps to upload firmware to the GAT NET.Writer 7000 F/ISO:

- Start GAT Config Manager.
- Follow the instructions in section “4.3. Setup for Configuration in GAT Config Manager”.
- Right-click on the GAT NET.Writer 7000 F/ISO and select “Update Firmware” from the drop-down menu.
  - The device update wizard opens.
- Select a firmware file from the list or locate the firmware file on your computer via the “Select local update package” button.
- Click on “Next”.
  - The wizard uploads the firmware file to the GAT NET.Writer 7000 F/ISO.

4.10.2 Uploading Firmware via Bootloader Mode

In some instances the standard procedure for uploading firmware to the GAT NET.Writer 7000 F/ISO may not function as required. In this case, the GAT NET.Writer 7000 F/ISO can be put into bootloader mode and the firmware uploaded while in this mode. Complete the following steps to upload firmware to the GAT NET.Writer 7000 F/ISO via bootloader mode:

- Disconnect the power supply from the GAT NET.Writer 7000 F/ISO.
- Reconnect the power supply while holding the RESET button (1 in Figure ***4.7***) pressed in.
- Press the RESET button twice.
  - The device enters bootloader mode.
- Follow the “4.9.1. Standard Procedure” instructions to upload firmware into the device.
- To exit bootloader mode, disconnect the power supply or send a restart command from a software application.

4.11 Software Integration

4.11.1 GAT DIRECT.Connect

The GAT NET.Writer 7000 F/ISO can be integrated and used with software applications that manage RFID systems. These applications are typically used to control access terminals, information terminals and the RFID data carriers that operate with these system components.

GANTNER has developed an integration tool called GAT DIRECT.Connect that uses the programming language independent JavaScript Object Notation (JSON) format. By using GAT DIRECT.Connect, software developers are able to integrate the GAT NET.Writer 7000 F/ISO (and other GANTNER products) into their software, irrespective of the programming language used.

Further information on GAT DIRECT.Connect is available in this document (DK_GAT-DIRECTConnect-Short-Description-EN), or by contacting your GANTNER representative.

5 TECHNICAL DATA

5.1 GAT NET.Writer 7000 F/ISO

Nominal voltage U_{DC}:	5 V
Power supply:	Via USB interface
Power consumption:	max. 350 mA
Supported RFID Technologies:	- MIFARE® Classic, MIFARE DESFire®, and MIFARE Ultralight® - ISO 15693
RFID frequency:	13.56 MHz
Connections:	- USB: Type B socket - Ethernet: RJ45 socket
Interface type:	- USB interface, Version 1.1 - Ethernet TCP/IP
Communication interface:	- USB: HID interface - TCP/IP: JSON
Display elements:	2 status LEDs and 1 acoustic signal generator
Housing material:	Plastic ABS
Dimensions:	126 x 115 x 44 mm (4.96 x 4.53 x 1.73 inches)
Permitted ambient temperature:	0 °C to +60 °C (+32 °F to +140 °F)
Protection type:	IP 40
Protection class:	III
Weight:	Approx. 175 g (6.17 oz.)
Environment class based on VdS 2110:	I (conditions in indoor areas)

6 APPENDIX

6.1 Scan Code List – English Keyboard

0x00	Reserved (no event indicated)	**0x30**	Keyboard] and }
0x01	0x01 Keyboard ErrorRollOver	**0x31**	Keyboard \ and |
0x02	Keyboard POSTFail	**0x32**	Keyboard Non-US # and ~
0x03	Keyboard ErrorUndefined	**0x33**	Keyboard ; and :
0x04	Keyboard a and A	**0x34**	Keyboard ' and "
0x05	Keyboard b and B	**0x35**	Keyboard Grave Accent and Tilde
0x06	Keyboard c and C	**0x36**	Keyboard, and <
0x07	Keyboard d and D	**0x37**	Keyboard . and >
0x08	Keyboard e and E	**0x38**	Keyboard / and ?
0x09	Keyboard f and F	**0x39**	Keyboard Caps Lock
0x0A	Keyboard g and G	**0x3A**	Keyboard F1
0x0B	Keyboard h and H	**0x3B**	Keyboard F2
0x0C	Keyboard i and I	**0x3C**	Keyboard F3
0x0D	Keyboard j and J	**0x3D**	Keyboard F4
0x0E	Keyboard k and K	**0x3E**	Keyboard F5
0x0F	Keyboard l and L	**0x3F**	Keyboard F6
0x10	Keyboard m and M	**0x40**	Keyboard F7
0x11	Keyboard n and N	**0x41**	Keyboard F8
0x12	Keyboard o and O	**0x42**	Keyboard F9
0x13	Keyboard p and P	**0x43**	Keyboard F10
0x14	Keyboard q and Q	**0x44**	Keyboard F11
0x15	Keyboard r and R	**0x45**	Keyboard F12
0x16	Keyboard s and S	**0x46**	Keyboard PrintScreen
0x17	Keyboard t and T	**0x47**	Keyboard Scroll Lock
0x18	Keyboard u and U	**0x48**	Keyboard Pause
0x19	Keyboard v and V	**0x49**	Keyboard Insert
0x1A	Keyboard w and W	**0x4A**	Keyboard Home
0x1B	Keyboard x and X	**0x4B**	Keyboard PageUp
0x1C	Keyboard y and Y	**0x4C**	Keyboard Delete Forward
0x1D	Keyboard z and Z	**0x4D**	Keyboard End
0x1E	Keyboard 1 and !	**0x4E**	Keyboard PageDown
0x1F	Keyboard 2 and @	**0x4F**	Keyboard RightArrow
0x20	Keyboard 3 and #	**0x50**	Keyboard LeftArrow
0x21	Keyboard 4 and $	**0x51**	Keyboard DownArrow
0x22	Keyboard 5 and %	**0x52**	Keyboard UpArrow
0x23	Keyboard 6 and ^	**0x53**	Keypad Num Lock and Clear
0x24	Keyboard 7 and &	**0x54**	Keypad /
0x25	Keyboard 7 and &	**0x55**	Keypad *
0x26	Keyboard 9 and (	**0x56**	Keypad -
0x27	Keyboard 0 and)	**0x57**	Keypad +
0x28	Keyboard Return (ENTER)	**0x58**	Keypad ENTER
0x29	Keyboard ESCAPE	**0x59**	Keypad 1 and End
0x2A	Keyboard DELETE (Backspace)	**0x5A**	Keypad 2 and Down Arrow
0x2B	Keyboard Tab	**0x5B**	Keypad 3 and PageDn
0x2C	Keyboard Spacebar	**0x5C**	Keypad 4 and Left Arrow
0x2D	Keyboard - and (underscore)	**0x5D**	Keypad 5
0x2E	Keyboard = and +	**0x5E**	Keypad 6 and Right Arrow
0x2F	Keyboard [and {	**0x5F**	Keypad 7 and Home
0x60	Keypad 8 and Up Arrow	**0x7D**	Keyboard Paste
0x61	Keypad 9 and PageUp	**0x7E**	Keyboard Find
0x62	Keypad 0 and Insert	**0x7F**	Keyboard Mute
0x63	Keypad . and Delete	**0x80**	Keyboard Volume Up
0x64	Keyboard Non-US \ and |	**0x81**	Keyboard Volume Down
0x65	Keyboard Application	**0x82**	Keyboard Locking Caps Lock
0x66	Keyboard Power	**0x83**	Keyboard Locking Num Lock
0x67	Keypad =	**0x84**	Keyboard Locking Scroll Lock
0x68	Keyboard F13	**0x85**	Keypad Comma
0x69	Keyboard F14	**0x86**	Keypad Equal Sign
0x6A	Keyboard F15	**0x87**	Keyboard International1
0x6B	Keyboard F16	**0x88**	Keyboard International2

0x6C	Keyboard F17	**0x89**	Keyboard International3
0x6D	Keyboard F18	**0x8A**	Keyboard International4
0x6E	Keyboard F19	**0x8B**	Keyboard International5
0x6F	Keyboard F20	**0x8C**	Keyboard International6
0x70	Keyboard F21	**0x8D**	Keyboard International7
0x71	Keyboard F22	**0x8E**	Keyboard International8
0x72	Keyboard F23	**0x8F**	Keyboard International9
0x73	Keyboard F24	**0x90**	Keyboard LANG1
0x74	Keyboard Execute	**0x91**	Keyboard LANG2
0x75	Keyboard Help	**0x92**	Keyboard LANG3
0x76	Keyboard Menu	**0x93**	Keyboard LANG4
0x77	Keyboard Select	**0x94**	Keyboard LANG5
0x78	Keyboard Stop	**0x95**	Keyboard LANG6
0x79	Keyboard Again	**0x96**	Keyboard LANG7
0x7A	Keyboard Undo	**0x97**	Keyboard LANG8
0x7B	Keyboard Cut	**0x98**	Keyboard LANG9
0x7C	Keyboard Copy		

FCC INFORMATION (U.S.A.)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that of which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Warning Statement
[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

(CANADA)

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1) l'appareil ne doit pas produire de brouillage;
2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le onctionnement.

Note:
This manual is valid from February 16th, 2017. It is subject to change.
Amendments can be made without prior notice at any time.

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