Gantner

GAT NET.Lock 7020 System

Electronic RFID Locker Locks

Installation, Configuration, Operation
Document Version 2.0

Liability

Any claims against the manufacturer based on the hardware or software products described in this manual shall depend exclusively on the conditions of the guarantee. Any further-reaching claims are excluded, and the manufacturer accepts no liability for the completeness or accuracy of the contents of this manual. The right is reserved to make alterations, and alterations may be made at any time without prior notice being given.

Trademarks

Attention is drawn at this point to markings and registered trademarks used in this manual. All product and company names, which are mentioned in this manual, are only used for identification and explanation purposes. Some of these names may be trademarks or registered trademarks of the corresponding company.

Contact

The contact information for questions regarding the GAT NET.Lock 7020, GAT NET.Controller S/M 7020, and GC7.2000 M (lite) or for general enquiries is listed below:

Contact address of manufacturer:
GANTNER Electronic GmbH
Bundesstraße 12
6714 Nüziders, Austria
www.gantner.com/locations

Important Information

Dear Customer,

Our aim is to ensure that 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.

- Pay attention to the safety messages in this manual. The messages are indicated by the signal words "DANGER", "WARNING", or "CAUTION", and inform you about hazardous situations and how to avoid them.
- Pay attention to messages indicated by the "NOTICE" signal word. These messages include important information for avoiding property damage.
- Pay attention to the symbols and safety messages on the product.
- Read all instructions in this manual carefully before installing or operating the product.
- Where not otherwise specifically documented, the appropriate installation, commissioning, operation and maintenance of the product is the customer's responsibility.
- Keep this manual in a safe place for quick reference.

Notation of Safety Information and Safety Symbols

This manual includes important safety messages and symbols intended to inform the user about potentially hazardous situations or important information for the safe and proper use of the described product(s). The safety messages also include directives on how to avoid hazardous situations. These safety messages and directives must be read and observed.
The structure of the safety messages and the meaning of the symbols used in this manual are described in this section.

1. Safety Messages for Personal Injury

Personal safety messages contain a signal word, describe the nature of the hazard, and indicate how to avoid the hazard.

The safety alert symbol used without a signal word always precedes important safety information that must be read carefully, and the instructions carefully observed. Not doing so may cause personal injury.

Format of safety messages that apply to an entire section:

These safety messages may be used with or without a symbol.

⚠CAUTION

Electrical shock

➔ *Touching current-conducting parts may result in injury due to electrical shock.*

- Do not remove safety protection and covers.

- Do not touch the electrical connections while power is being supplied.

Format of safety messages that are embedded in text and apply to a specific point:

⚠**CAUTION! Electrical shock.** Never remove safety protection and covers. Do not touch the electrical connections while power is being supplied.

2. Property Damage Messages

Property damage messages are used to describe potentially hazardous situations that may lead to property damage. These messages have the same layout as safety messages but use the signal word "NOTICE" instead of “CAUTION”.

Format of property damage messages that apply to an entire section:

NOTICE

Risk of damage to the device and connected devices
Risk of malfunction

- Read the following instructions carefully before installing the device.
- Always adhere to the instructions.

Format of property damage messages that are embedded in text and apply to a specific point:

NOTE! Risk of damage to the device and connected devices. Read the following instructions carefully before installing the device.

3. Definition of the Signal Words

⚠CAUTION	Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

4. Definition of the Safety Symbols

	**Caution: General Information** This symbol indicates general warnings or cautions that are not related to a particular type of hazard.
	**Caution: Electrical Shock** This symbol indicates warnings related to electrical hazards (danger due to high voltage).
	**Prohibited: Do Not Disassemble** This symbol indicates warnings about not disassembling certain components or equipment. Disassembling may lead to damage or malfunction of the device.
	**Mandatory Action: General Information** This symbol indicates general information that must be read and followed before proceeding with the accompanying instructions.
	**Mandatory Action: Read Instructions** This symbol indicates information referring to an important description in the manual, or other documentation, which must be read and followed.

⚠ Important Safety Information ⚠

- The installation, commissioning, and servicing of our products must be performed only 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.
  - ➔ Unqualified personnel may potentially perform actions that result in injury due to electrical shock.

- 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.
  - ➔ If the appliance is not disconnected from power, touching terminals or other internal parts of the appliance may lead to injury due to electrical shock.

- It is prohibited to alter the products (devices, cabling, etc.).
  - ➔ Alterations to the products may subsequently result in personal injury, property damage, or damage to the products.
- Do not remove protective shields and covers.
  - ➔ Removing protective shields and covers may result in personal injury or property damage.
- 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.

- 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 documentation. Therefore, it is essential to read the corresponding chapter of this manual and observe the instructions and information therein.
- If there are still some points that 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.
- 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.

- 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 endeavor to resolve the problem as quickly as possible.
- GANTNER Electronic GmbH accepts no responsibility for any injuries or damage caused as a result of improper use.

Although great 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.

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.

We especially look forward to hearing from you if you want to let us know that everything is functioning perfectly.

FCC INFORMATION (U.S.A.)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Warning Statement

[Any] changes or modifications not expressly approved by GANTNER Electronic GmbH could void the user's authority to operate the equipment.

Compliance Information Statements:

GAT NET.Lock 7020 P

GAT NET.Lock 7020 USB P

FCC ID: NC4-GEA1190149A

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.

GAT NET.Controller S 7020 F/ISO

GAT NET.Controller S 7020 F/ISO light

FCC ID: NC4-GEA1190143A

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.

GAT NET.Controller S 7020 BA

FCC ID: NC4-GEA1190148A

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.

GAT NET.Controller S 7020 ICLS

FCC ID: NC4-GEA1190147A

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.

ICES Statement (Canada)

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

INDUSTRY CANADA INFORMATION

Device (*Appareil*)	**IC ID**
GAT NET.Lock 7020 P GAT NET.Lock 7020 USB P	11873A-1190149A
GAT NET.Controller S 7020 F/ISO GAT NET.Controller S 7020 F/ISO light	11873A-1190143A
GAT NET.Controller S 7020 BA	11873A-1190148A
GAT NET.Controller S 7020 ICLS	11873A-1190147A

These devices comply with Industry Canada's license-exempt RSS(s). 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.

Ces présent appareils sont conformes 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

The GAT NET.Lock 7020 was developed and fabricated under the quality management standard ISO 9001 and GANTNER Electronic GmbH is also certified according to standard ISO 14001.

CE

This product is in conformity with the following EC directives, including all applicable amendments:
- 2014/53/EU (Radio Equipment Directive)
The complete text of the CE Declaration of Conformity is available on the following internet link:
https://www.gantner.com/downloads-gat-netlock7020_gz33sib79r

RoHS

GANTNER is committed to meeting or exceeding the requirements of the RoHS directive (2011/65/EU). The RoHS directive requires that manufacturers eliminate or minimize the use of lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyls and polybrominated diphenyl ethers in electrical and electronic equipment sold in the EU after July 1, 2006.

The 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.

Magnetic field can be harmful to pacemakers and other sensitive equipment.

Pacemaker wearers please stay back 10 cm (4 in.).

TABLE OF CONTENTS

1. INTRODUCTION

1.1 About this Manual

This manual contains all the necessary information required to install GAT NET.Lock 7020 RFID locks into lockers/depots. Operating instructions for the end user are also fully explained. In order to use the GAT NET.Lock 7020 locks, a GAT NET.Controller S 7020 (sub controller) as well as a GAT NET.Controller M 7020 (main controller) or GC7.2000 M (lite) are required. In addition, RFID data carriers are required with which the users identify themselves at the locks. These system parts are also described in this manual.

For the configuration and management of the system, PC software, e.g., Relaxx, can be used. In this manual you will find a brief overview of the Relaxx configuration software from GANTNER Electronic GmbH. Separate installation and operating manuals are also available for this software

1.2 Chapter Overview

In chapter 2 "GENERAL INFORMATION", general information about the GAT NET.Lock 7020 system as well as an overview of the various system parts with order information can be found.

Chapter 3 "INSTALLATION" includes instructions on how the GAT NET.Lock 7020 locks are installed into the lockers. Here the mounting procedure of the locks and bolt sets is described in addition to all important measurements and installation information. Because there are many different types of lockers available, the mounting procedure is described generally and not for a specific type of locker.

Chapter 4 "ELECTRICAL CONNECTIONS" describes how the GAT NET.Lock 7020 locks and controllers are connected to each other and connected to their power supplies. Also found here is information about the requirements and installation of the network connection cables.

Chapter 5 "CONFIGURATION AND OPERATION" describes the operation of the GAT NET.Lock 7020 by a user/visitor within a facility. Instructions for antenna adjustment and the resetting and deleting of configuration parameters in the controllers are also explained. The visual and acoustic signaling of the GAT NET.Lock 7020 and controllers are also described here. An overview of the Relaxx configuration software is also included in this chapter.

Available in chapter “6 CLEANING AND MAINTENANCE" is all the information required to carry out functional testing of the GAT NET.Lock 7020 system as well as how to clean and maintain the components.

Chapter 7 "TECHNICAL DATA" contains the necessary technical information for the GAT NET.Lock 7020 locks and the GAT NET.Controller S 7020, GAT NET.Controller M 7020, and GC7.2000 M (lite) controllers.

1.3 Contact & Inquiries

If you have any questions concerning the GAT NET.Lock System, please contact your local sales partner or one of the GANTNER branch offices directly. The contact details are available via the following link: www.gantner.com/locations

1.4 Target Group

This manual contains the necessary information for the different stages in the operating life of the GAT NET.Lock 7020. Information regarding the installation, configuration and operation, and service and maintenance is separated into corresponding chapters. When a chapter is intended for a specific target group, this is clarified at the beginning of the chapter. Information for the following target groups is available in this manual:

- Installation technicians (installation, configuration).
- Service technicians of the access control system (service).
- End users of the GAT NET.Lock 7020 (operation).

Where not explicitly stated, the information in this manual is intended for all target groups in general.

CAUTION! Injury and property/equipment damage. The tasks described in each chapter must only be performed by the specified target group. Unqualified personnel who perform the described tasks risk personal injury or damaging property/equipment.

1.5 Formatting

1.5.1 Safety-Critical Information

The following formatting (with example text) is used in this manual to display important, safety-critical information that must be read and followed.

NOTE! Following on from this signal word in the manual is a reference text that must be read and followed. The reference text contains important information. Non-observance can lead to damage the device or associated equipment.

1.5.2 Non-Safety-Critical Information

The following formatting (with example text) is used in this manual to display important, but not safety-critical information.

The text accompanying this symbol contains interesting information relevant to the current chapter. It will help you better understand the information in this section or provide interesting tips for the described device or the operation of the software.

1.5.3 Instructions and Results

Instructions, which must be completed by the reader, and the results of these instructions are formatted as follows.

► This symbol represents an action or instruction that that must be followed.

  ○ This symbol represents the result after completing the previous instruction.

2. GENERAL INFORMATION

2.1 Intended Use

The GAT NET.Lock 7020 lock is intended for the convenient electronic locking of wardrobe lockers in fitness clubs, baths, golf resorts, hotels, and other individual company applications. Operation of the GAT NET.Lock 7020 is carried out using contactless RFID data carriers (Radio Frequency Identification).

The GAT NET.Lock 7020 is suitable for any type of locker material (e.g., sheet metal, wood, HPL, solid plastic, glass) and can be used with left and right-hinged doors alike.

To control the GAT NET.Lock 7020, only the GAT NET.Controller S 7020, GAT NET.Controller M 7020, and GC7.2000 M (lite) controllers may only be used.

2.2 Unintended Use

The GAT NET.Lock 7020 must not be used for locking enclosures and lockers that contain emergency medical equipment, e.g., defibrillators, emergency medicine, fire extinguishers, etc.

2.3 Functional Description

The GAT NET.Lock 7020 is installed on the inner side of the locker body. A bolt set is mounted on the inner side of the locker door. The bolt set holds the door shackle that inserts into the GAT NET.Lock 7020 and locks the door. The GAT NET.Lock BoltSet 7120 is designed for use with locker doors made from wood, HPL, or solid plastic. For locker doors made from metal, use the GAT NET.Lock BoltSet 7220 and for glass locker doors, the GAT NET.Lock BoltSet 7320 is available. The bolt set also includes a passive booster in order to amplify the RFID reading field.

The GAT NET.Lock 7020 locks are controlled by the GAT NET.Controller S 7020 sub controllers. Various sub controllers are available to support different types of RFID technologies: LEGIC, MIFARE®, ISO 15693, HID iCLASS®. Depending on the type of controller, up to 24 GAT NET.Lock 7020 locks can be connected per sub controller. The sub controllers are connected to main controllers that communicate with locker management software (e.g., Relaxx software from GANTNER Electronic GmbH) on a host computer/server via Ethernet.

Using a locker

The user closes the door of their locker and while holding the door shut, holds their data carrier next to the RFID reading center on the locker door, which is indicated by the LED inside the lock. The GAT NET.Lock 7020 reads the data carrier information then communicates with the controllers to determine whether the user is allowed to use the locker (depending on their authorization). If the user is authorized to use the locker, a command is sent to the GAT NET.Lock 7020 to lock the locker door.

To unlock a locker door the user holds their data carrier next to the reading center of their previously locked locker door. The GAT NET.Lock 7020 communicates with the controllers and host software to ascertain whether the user has valid authorization to unlock the locker door. The locker door automatically opens after a valid command has been sent to the GAT NET.Lock 7020.

Operating Requirements and Conditions

The design of the GAT NET.Lock 7020 system complies with the guidelines of the U.S. Federal Communications Commission (FCC) regarding safety levels for exposure to radio frequency (RF) from mobile/portable devices.

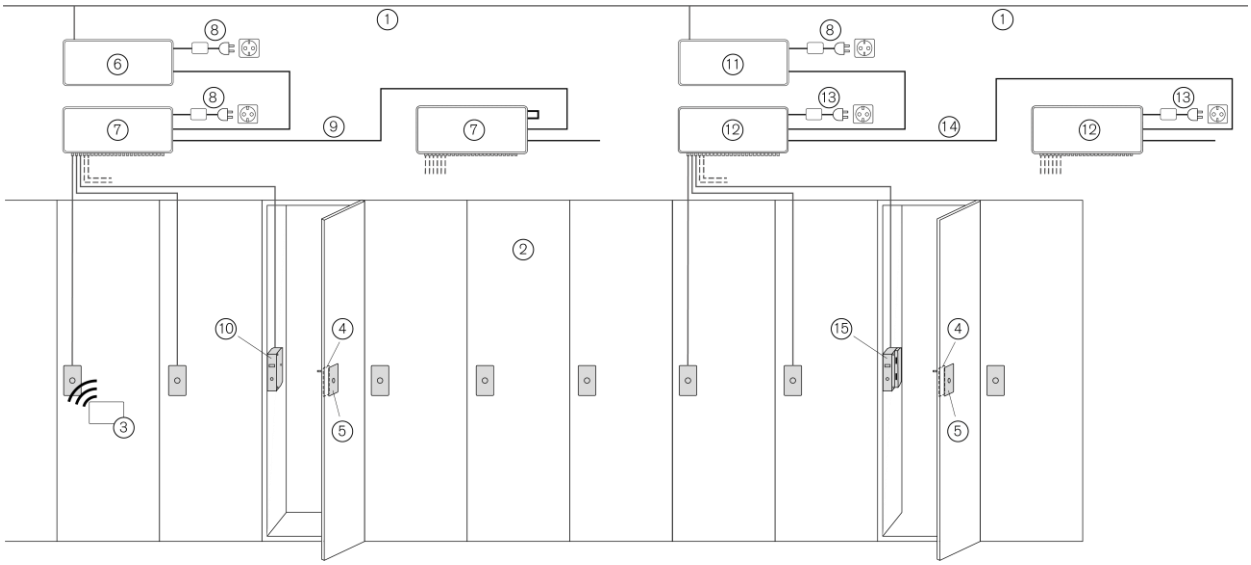


Figure 2.1 *– Typical application of the GAT NET.Lock 7020 system*

1. LAN Network
2. Lockers
3. RFID data carrier
4. Bolt set (GAT NET.Lock BoltSet 7xxx)
5. Front label

Different variants of GAT NET.Lock locks and controllers can operate in combination:

6. Main controller 7020 or 7000 or GC7.2000 M (lite)
7. Sub controller 7020 or 7000
8. GAT NET.Power Supply 7020 (without "USB") or 7000
9. RS-485 + power
10. GAT NET.Lock 7020 / 7020 P or GAT NET.Lock 7000

To use the USB and LED function, the GAT NET.Lock 7020 USB (P) and the following combination of controllers and power supplies must be used:

11. Main controller 7020 or 7000 or GC7.2000 M (lite)
12. Sub controller 7020
13. GAT NET.Power Supply 7020 USB
14. RS-485 (without direct power, each sub controller needs its own "USB" type power supply)
15. GAT NET.Lock 7020 USB or 7020 USB P

2.4 Terminology

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

Booster
Electronic component for amplifying the RFID reading field of the GAT NET.Lock 7020. The bolt sets for the GAT NET.Lock 7020 are supplied with an integrated booster.

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).

FID (Company ID) and Site Key
The FID and site key are unique numbers assigned to every facility installation. The site key is a combination of the FID and the read and write keys. The site key is used in MIFARE® and ISO 15693 systems and is encoded in every data carrier and device used in the facility thereby ensuring that data carriers from one installation cannot be used in other installations.

Relaxx
PC software that is installed on a server/host computer and used to configure and control the connected controllers and locks. A separate installation manual and integrated help is available for this software.

Lock
General term for the GAT NET.Lock 7020.

Locker
The term "locker" is used to generally describe all possible locker applications, e.g., a changing room locker, depot box, or private box, which can be locked by the GAT NET.Lock 7020.

Main Controller
The main controller is used to connect the sub controllers via Ethernet to a higher-ranking PC/server running locker system control software (e.g., Relaxx). The GAT NET.Controller M 7020 or the GC7.2000 M (lite) can be used as a main controller.

RFID (Radio-Frequency Identification)
Identification over short distances using radio frequency. An RFID data carrier is used as identification media.

Sub Controller
The GAT NET.Lock 7020 locks are connected to a GAT NET.Controller S 7020 sub controller (up to 24 units per sub controller). The sub controllers receive control signals via a serial RS-485 interface and control the connected locks accordingly.

User / Visitor
The terms "user" and "visitor" in this manual refer to the users (persons) who operate, i.e., lock or unlock, a locker controlled by a GAT NET.Lock 7020.

2.5 RFID Technology

Identification of users by the GAT NET.Lock 7020 is done via RFID (radio-frequency identification) using a frequency of 13.56 MHz. The GAT NET.Lock 7020 (USB) P locks include a 125 kHz reader in addition to the 13.56 MHz reader.

There are different RFID technologies available. The following identifiers are added to the GANTNER product name to indicate the type of technology the device supports:

- "B": LEGIC
- "F": MIFARE®
- "ISO": ISO 15693
- "ICLS": HID iCLASS®

The GAT NET.Lock 7020 locker locks and the GAT NET.Controller M 7020 and GC7.2000 M (lite) main controllers can operate with all RFID technologies. The sub controller GAT NET.Controller S 7020 is available in three different versions:

- GAT NET.Controller S 7020 B: LEGIC
- GAT NET.Controller S 7020 F/ISO: MIFARE® and ISO 15693
- GAT NET.Controller S 7020 ICLS: HID iCLASS®

All devices and data carriers within a system must use the same technology. The information in this manual is applicable for all RFID types. If specific information is only valid for a certain type of technology, this will be noted.

2.6 System Components

The GAT NET.Lock 7020 system consists of the following components:

1. GAT NET.Lock 7020

For lockers with non-metallic doors

2. GAT NET.Lock BoltSet 7120

For lockers with metallic doors

3. GAT NET.Lock BoltSet 7220

For lockers with glass doors

4. GAT NET.Lock BoltSet 7320

5. GAT NET.Controller S 7020

6. GAT NET.Controller M 7020

7. GC7.2000 M (lite)

9. Power Cord 2m xxx – IEC 60320 C7
   Power Cord 2.5m xxx – IEC 60320 C13

8. GAT NET.Power 7020 Supply 100-240 / VI
   GAT NET.Power 7020 Supply USB 100-240 / VI

10. GAT NET.Lock Cable 5m

11. GAT NET.Lock Cable Extension 3m

12. Ethernet Patch Cable

13. GAT NET.Lock Tool 7020

14. GAT NET.Lock Label G18
(Door labels in different designs)

15. GAT NET.Lock Basic Set xxx

Figure 2.2 *- Components of the GAT NET.Lock 7020 system*

Some optional components are also available for the GAT NET.Lock 7020 system. All components are listed in a separate order information document (see "2.7 Order Information Guide").

1. GAT NET.Lock 7020
   Electronic RFID locker lock without connection cable and without bolt set.
   - GAT NET.Lock 7020 (Part No. 1100394).
   - GAT NET.Lock 7020 P (Part No. 1100391). Additional 125 kHz proxy reader.
   - GAT NET.Lock 7020 USB (Part No. 1100393). 2 x USB ports and LED locker lighting.
   - GAT NET.Lock 7020 USB P (Part No. 1100392). 2 x USB ports and LED locker lighting and additional 125 kHz proxy reader.

2. GAT NET.Lock BoltSet 7120 (Part No. 1100395)
   Bolt set with door shackle and booster for non-metallic doors. The bolt set is mounted on the inner side of the locker door.

3. GAT NET.Lock BoltSet 7220 (Part No. 1100396)
   Bolt set with door shackle and booster for metallic doors. The bolt set is installed into locker door. The label carrier is also included in the set.

4. GAT NET.Lock BoltSet 7320 (Part No. 1100397)
   Bolt set with door shackle, booster, and metal support for glass doors. The bolt set is glued to the metal support on the inner side of the glass door. Adhesive is not included with the set.

5. GAT NET.Controller S 7020
   The sub controller is a control unit for connecting the GAT NET.Lock 7020 electronic locks. Available for different RFID technologies:
   - GAT NET.Controller S 7020 BA (Part No. 1100387). For LEGIC systems. Max. 24 GAT NET.Lock 7020 locks per controller.
   - GAT NET.Controller S 7020 F/ISO (Part No. 1100388). For MIFARE® / ISO 15693 systems. Max. 24 GAT NET.Lock 7020 locks per controller.
   - GAT NET.Controller S 7020 F/ISO Light (Part No. 1100389). For MIFARE® and ISO 15693 systems. Max. 12 GAT NET.Lock 7020 locks per controller.
   - GAT NET.Controller S 7020 ICLS (Part No. 1100390). For iCLASS® systems. Max. 24 GAT NET.Lock 7020 locks per controller.

6. GAT NET.Controller M 7020
   Main controller, control unit for connecting the GAT NET.Controller S 70x0 sub controllers. The main controller is a control unit used to connect the sub controllers to a server/PC:
   - GAT NET.Controller M 7020 (Part No. 1100399). For connection of up to 8 sub controllers.
   - GAT NET.Controller M 7020 Light (Part No. 1100398). For connection of up to 3 sub controllers (GAT NET.Controller S 7020 F/ISO Light).

7. GC7.2000 M (lite)
   Main controller, control unit for connecting the GAT NET.Controller S 70x0 sub controllers. The main controller is used to connect to a server/PC:
   - GC7.2000 M (Part No. 1103558). For the connection of up to 8 sub controllers.
   - GC7.2000 M lite (Part No. 1103559). For the connection of up to 3 sub controllers (Light).

8. GAT NET.Power Supply
   - GAT NET.Power Supply 7020 100-240V / VI (Part No. 1100051). Power supply unit for the main and non-USB sub controllers.
   - GAT NET.Power Supply 7020 USB 100-240V / VI (Part No. 1100052). Power supply unit for sub controllers with GAT NET.Lock 7020 USB (P) locks.

9. Power Cord 2m xxx – IEC 60320 C7
   2 m power cord with country-specific plug suitable for the GAT NET.Power Supply 7020 100-240V / VI.
   - Power Cord 2m EU CH – IEC 60320 C7 (Part No. 494181). For European (incl. Swiss) power outlets.
   - Power Cord 2m UK – IEC 60320 C7 (Part No. 494282). For United Kingdom power outlets.
   - Power Cord 2m AUS – IEC 60320 C7 (Part No. 511474). For Australian power outlets.
   - Power Cord 2m USA – IEC 60320 C7 (Part No. 636835). For United States power outlets.
   - Power Cord 2m IND – IEC 60320 C7 (Part No. 636734). For Indian power outlets.

   Power Cord Xm xxx – IEC 60320 C13
   2 m or 2.5 m power cord with country-specific plug suitable for the GAT NET.Power Supply 7020 USB 100-240V / VI.
   - Power Cord 2.5m EU – IEC 60320 C13 (Part No. 495624). For European (excl. Swiss) power outlets.
   - Power Cord 2m CH – IEC 60320 C13 (Part No. 499123). For Swiss power outlets.
   - Power Cord 2.5m UK – IEC 60320 C13 (Part No. 499022). For United Kingdom power outlets.
   - Power Cord 2.5m AUS – IEC 60320 C13 (Part No. 402877). For Australian power outlets
   - Power Cord 2m USA – IEC 60320 C13 (Part No. 270615). For United States power outlets.
   - Power Cord 2.5m IND – IEC 60320 C13 (Part No. 696892). For Indian power outlets.

10. GAT NET.Lock Cable 5m (Part No. 734430)
    5 m cable to connect a GAT NET.Lock 7020 to a sub controller. 4-pin MOLEX plug on both ends.

11. GAT NET.Lock Cable Extension 3m (Part No. 810021)
    3 m extension cable to extend the GAT NET.Lock Cable 5m.

12. GAT Patch Cable 5805 – 5m (Part No. 909321)
    Standard network cable (min. CAT.5) to connect the sub controller to the main controller.

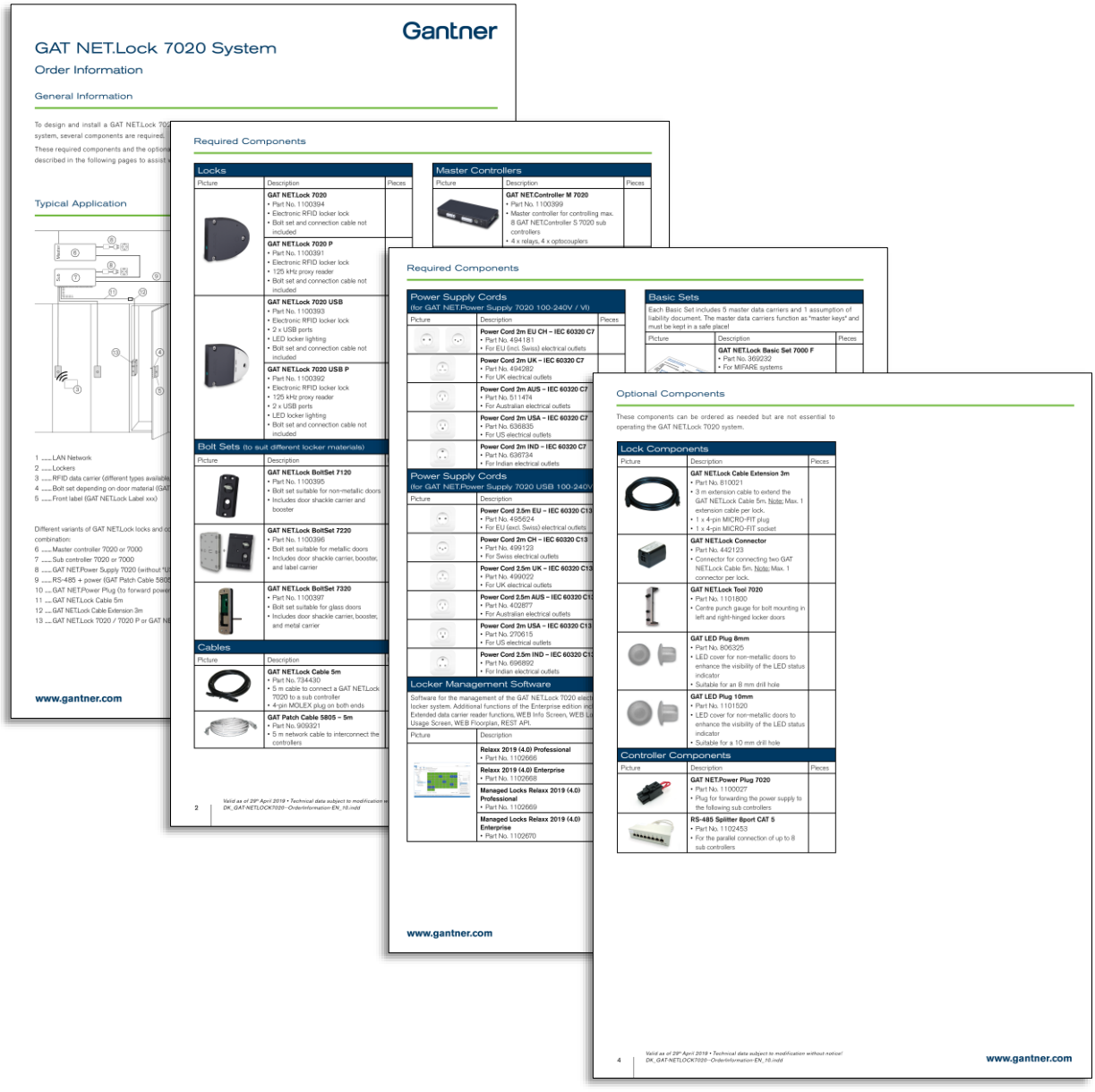
13. GAT NET.Lock Tool 7020 (Part No. 1101800)
    Centre punch gauge for bolt mounting in the locker doors. Drill holes for the bolt installation can be accurately marked onto the locker door using this gauge.

14. GAT NET.Lock Label G18 xxx
    Self-adhesive locker door labels in GANTNER design. For metallic doors, the label is stuck onto the label carrier. For non-metallic doors, the label is stuck directly onto the door. The labels are available for right and left doors and with or without printed locker numbers:
    - GAT NET.Lock Label G18 Right (Part No. 1101743). For right-hinged doors, without numbering.
    - GAT NET.Lock Label G18 NUM Right (Part No. 1101745). For right-hinged doors, with numbering.
    - GAT NET.Lock Label G18 Left (Part No. 1101742). For left-hinged doors, without numbering.
    - GAT NET.Lock Label G18 NUM Left (Part No. 1101744). For left-hinged doors, with numbering.

15. GAT NET.Lock Basic Set xxx
    Set consisting of five master cards and an assumption of liability sheet. The master cards have master key functionality and are used to open all lockers in a GAT NET.Lock 7020 locker system. Available for different RFID technologies:
    - GAT NET.Lock Basic Set B (Part No. 369131). For LEGIC systems.
    - GAT NET.Lock Basic Set F (Part No. 369232). For MIFARE® systems.
    - GAT NET.Lock Basic Set ISO (Part No. 369333). For ISO 15693 systems.

2.7 Order Information Guide

For the planning and ordering of the GAT NET.Lock 7020 system, a separate order information document is available to help guide you through the process.



3. INSTALLATION

NOTICE

Risk of damage or failure to the GAT NET.Lock 7020

- *Read the information in this chapter carefully before installing the GAT NET.Lock 7020*
- *The GAT NET.Lock 7020 must be installed in a dry place, protected from rain and dripping water*
- *Carefully observe the measurement diagrams*
- *Use the correct tools to install the GAT NET.Lock 7020*
- *The existing GAT NET.Lock Bolt Set 7000 cannot be used with the GAT NET.Lock 7020*

3.1 Target Group

This chapter provides information for technicians who install the GAT NET.Lock 7020. Experience in mechanical work and basic electrical knowledge is required. Previous knowledge of the GAT NET.Lock 7020 is not required.

- In case of damage due to non-observance of the installation and assembly instructions, as well as the use of non-original accessories, the warranty is void.
- Alteration and/or modification of the product is not permitted.

NOTE!

- The installation instructions in this chapter apply for all variants (see “2.6 System Components”) of the GAT NET.Lock 7020.
- Where not indicated, all measurements in the diagrams are in millimeters with inches shown in brackets.

3.2 Test Installation

As the GAT NET.Lock 7020 is suitable for a wide range of installation applications, always perform a test installation including functional testing of the GAT NET.Lock 7020 in a sample locker from the facility before starting the mass production of lockers.

Ensure that the following important points are met.

- The door shackle slides centrally into the opening of the GAT NET.Lock 7020.
- The locker door locks without any problems.
- The locker door opens without resistance (ensure retaining elements such as springs are correctly calibrated).

NOTE! Ensure the connection cable is completely installed, fed out of the locker body, and connected to the GAT NET.Controller S 7020 before completing the locking test.

Also test the GAT NET.Lock 7020 using a data carrier, ideally of the same type to be used in the locker system, to ensure the data carrier functions as required. Once the test installation is successfully completed, the remaining locks can be installed in the same way. An installation checklist is available from GANTNER to assist with the test installation process.

3.3 Metallic and Non-Metallic Doors

Because the RFID field of the GAT NET.Lock 7020 is distorted or blocked by metal (e.g., metallic locker doors), a cut-out must be made in metallic locker doors into which the GAT NET.Lock Bolt Set 7220 and the label carrier are installed. A specific cut-out for non-metallic doors is not necessary, only a drill hole for the status LED is required.

Since the reading range of the GAT NET.Lock 7020 is limited, the door of non-metallic lockers must not be too thick. The maximum door thickness of non-metallic doors depends on the RFID technology and the type of data carriers used.

3.4 Bolt Gauge

The bolt gauge (GAT NET.Lock Tool 7020, Part No. 1101800) can be used to assist installation in non-metallic doors. The gauge allows you to easily mark the positions of the drill holes onto the door.

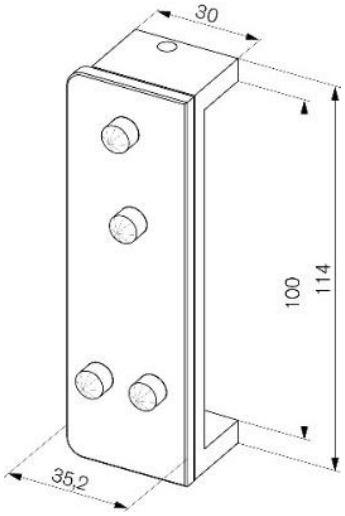


***Figure 3.3** – Bolt gauge (dimensions in mm)*

The instructions for using the bolt gauge are included with the installation instructions for non-metallic doors (see "3.10.1 Installation Instructions for the GAT NET.Lock 7020 and Non-Metallic Doors").

3.5 Replacement After Break-In

If the locker has been broken into (forced opening) or if a break-in has been attempted, the entire GAT NET.Lock 7020 must be replaced with a new one. The bolt set and the door shackle must also be replaced.

3.6 Door Status Function

In order to indicate whether the locker is occupied or not, the GAT NET.Lock 7020 has a feedback function that is activated by the bolt set as soon as the locker door is closed.

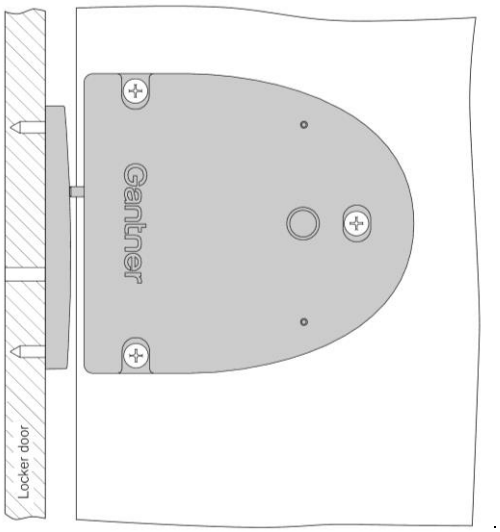


***Figure 3.4** – Door status function*

3.7 Definition of the Door Hinge (Right or Left Door)

For installation, it is important to determine whether the door is hinged to the left or the right. This is defined as follows:

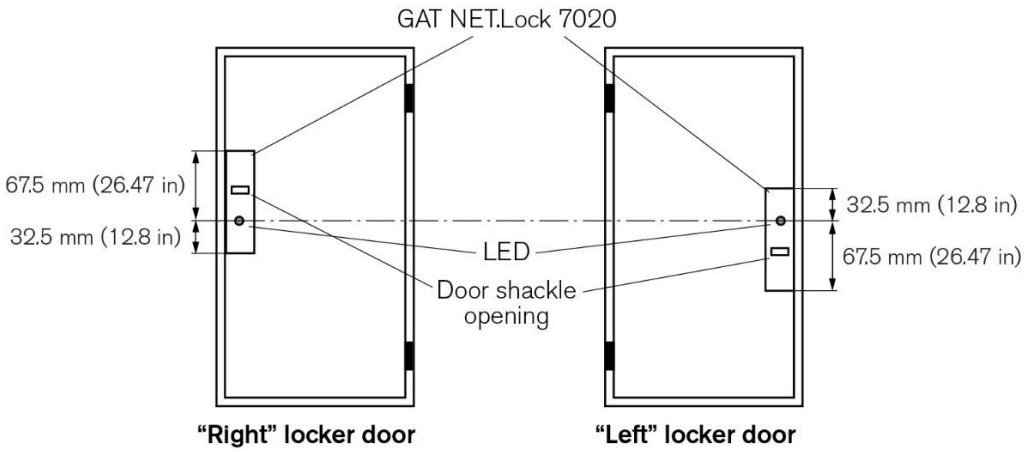


***Figure 3.1** - Definition of the opening direction of lockers (left/right)*

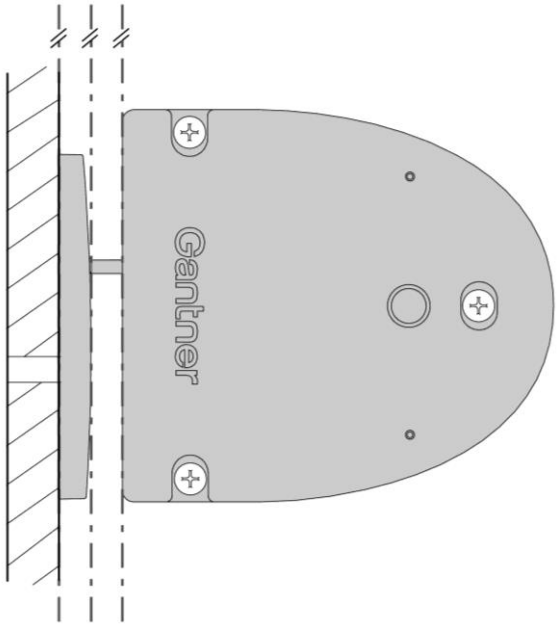
In this chapter, the installation for right-hinged doors is described. The installation process for left locker doors is in principle the same as for right locker doors, only with reversed lock and door orientation.

NOTE! If spring hinges are used in the locker door, ensure the spring strength is calibrated to allow correct operation of the lock. Springs that are too strong can keep the bolt set permanently held in thereby activating the lock's electronics.

3.8 Installation Requirements for the GAT NET.Lock 7020 and Bolt Set

During the installation, please pay particular attention to the following points:

- When the door is pressed shut, ensure there is no gap between the bolt set and the front of the GAT NET.Lock 7020. Ideally, the bolt set should touch the front of the lock.
- The locker door, the bolt set, and the front side of the GAT NET.Lock 7020 must be perpendicular and parallel to each other.



- If right and left-hinged doors are in use together, please note the correct LED position. The GAT NET.Lock 7020 is mounted upside-down on left doors in comparison to right doors.

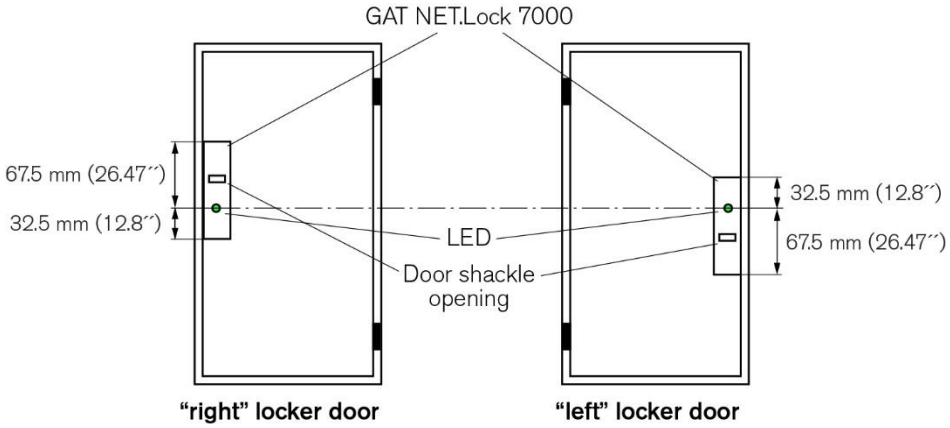


Figure 3.2 *- LED positions of the GAT NET.Lock 7020 for right and left-hinged doors*

NOTE! Before installing all locks in a new locker system, a test installation of one lock into a completed locker and a function check must be performed. See section “3.2. Test Installation”.

3.9 Measurement Diagrams for Installation

3.9.1 Door Width

The minimum allowed door width (measured from the door shackle to the hinge) is 170 mm (6.7 in). If the door is narrower than 170 mm, the door shackle will hit the lock when the door is being closed.

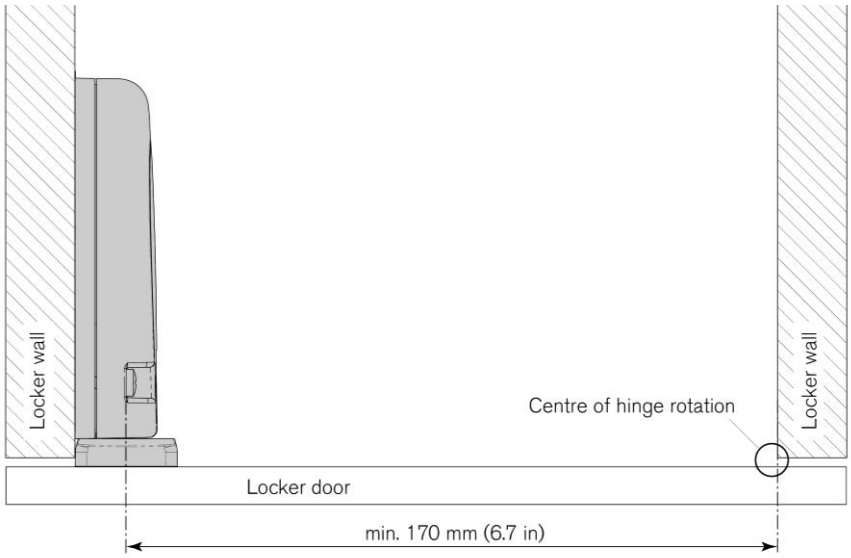


***Figure 3.3** – Minimum door width*

3.9.2 Dimensions of the GAT NET.Lock 7020 / GAT NET.Lock 7020 P

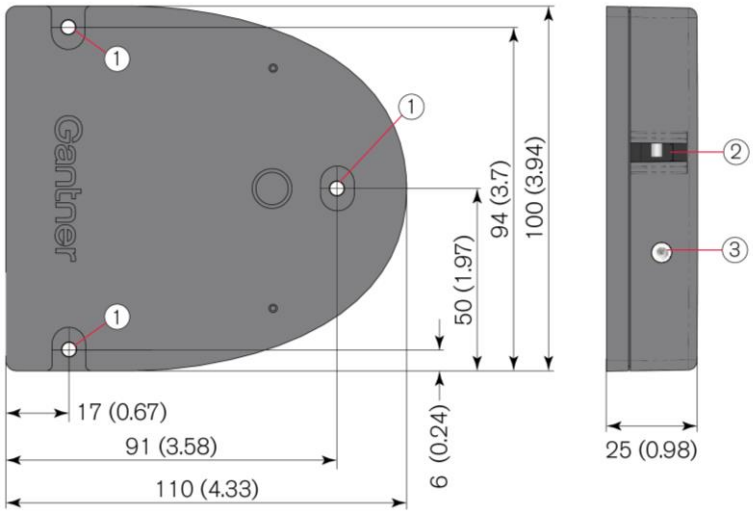


***Figure 3.4** - Dimensions of the GAT NET.Lock 7020 / GAT NET.Lock 7020 P*

1. Mounting holes for GAT NET.Lock 7020 on the inner side of the locker wall (3x)
2. Opening for door shackle
3. Status LED

3.9.3 Dimensions of the GAT NET.Lock 7020 USB and GAT NET.Lock 7020 USB P

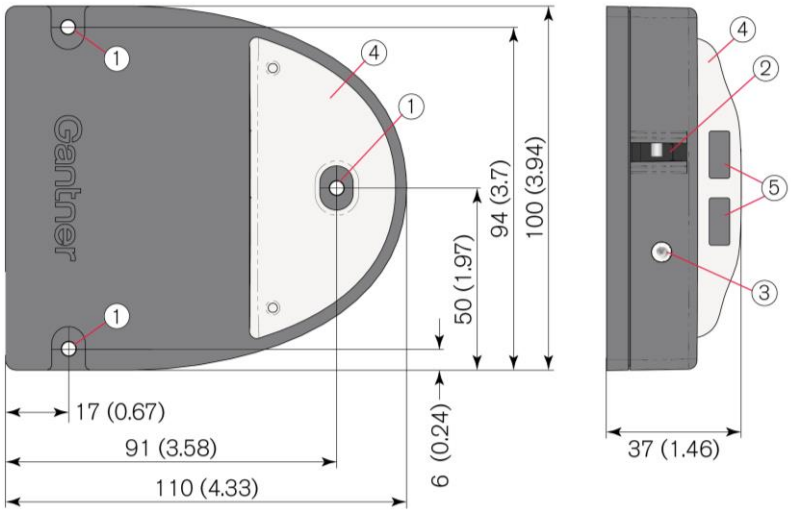


Figure 3.5 *- Dimensions of the GAT NET.Lock 7020 USB / GAT NET.Lock 7020 USB P*

1. Mounting holes for GAT NET.Lock 7020 on the inner side of the locker wall (3x)
2. Opening for door shackle
3. Status LED
4. Top part with LED lighting and USB ports
5. USB ports with charging function

3.9.4 Dimensions of the GAT NET.Lock BoltSet 7120 (Non-Metallic Doors)

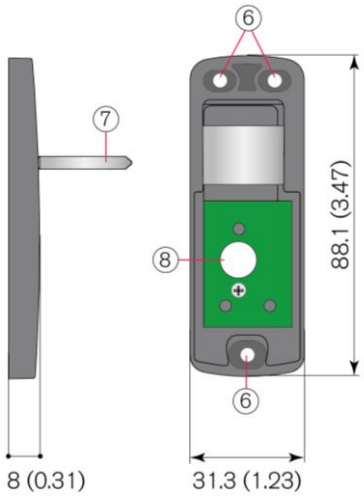


Figure 3.6 *- Dimensions of the GAT NET.Lock BoltSet 7120*

6. Mounting holes for GAT NET.Lock BoltSet on the inner side of the locker door
7. Door shackle
8. Hole for status LED

3.9.5 Dimensions of the GAT NET.Lock BoltSet 7220 (Metallic Doors)

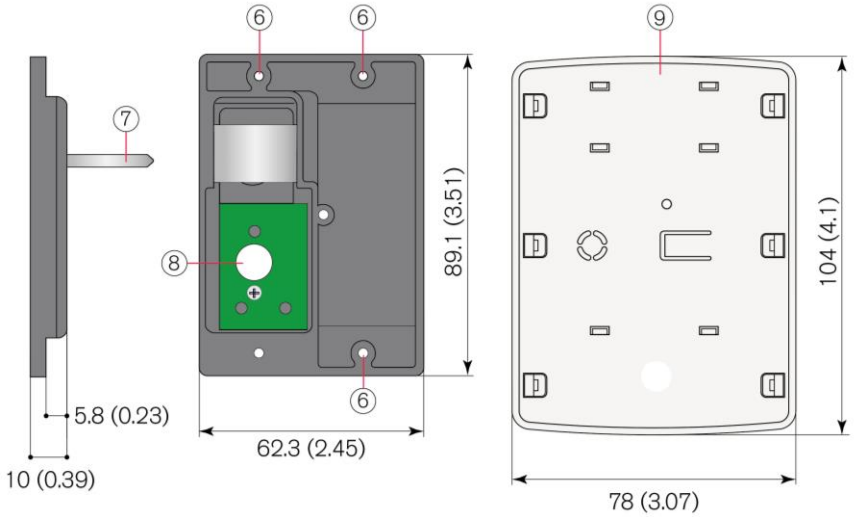


Figure 3.7 *- Dimensions of the GAT NET.Lock BoltSet 7220*

6. Mounting holes for GAT NET.Lock BoltSet on the inner side of the locker door
7. Door shackle
8. Hole for status LED
9. Front cover

3.9.6 Dimensions of the GAT NET.Lock BoltSet 7320 (Glass Doors)

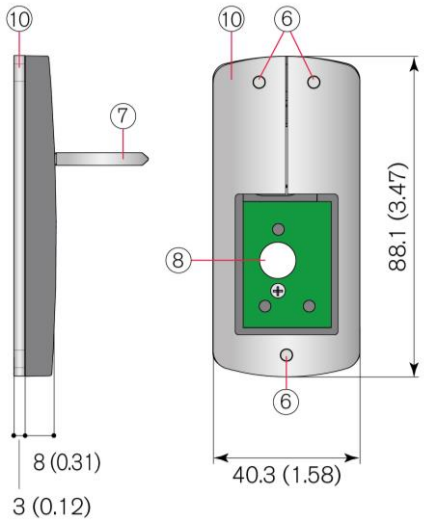


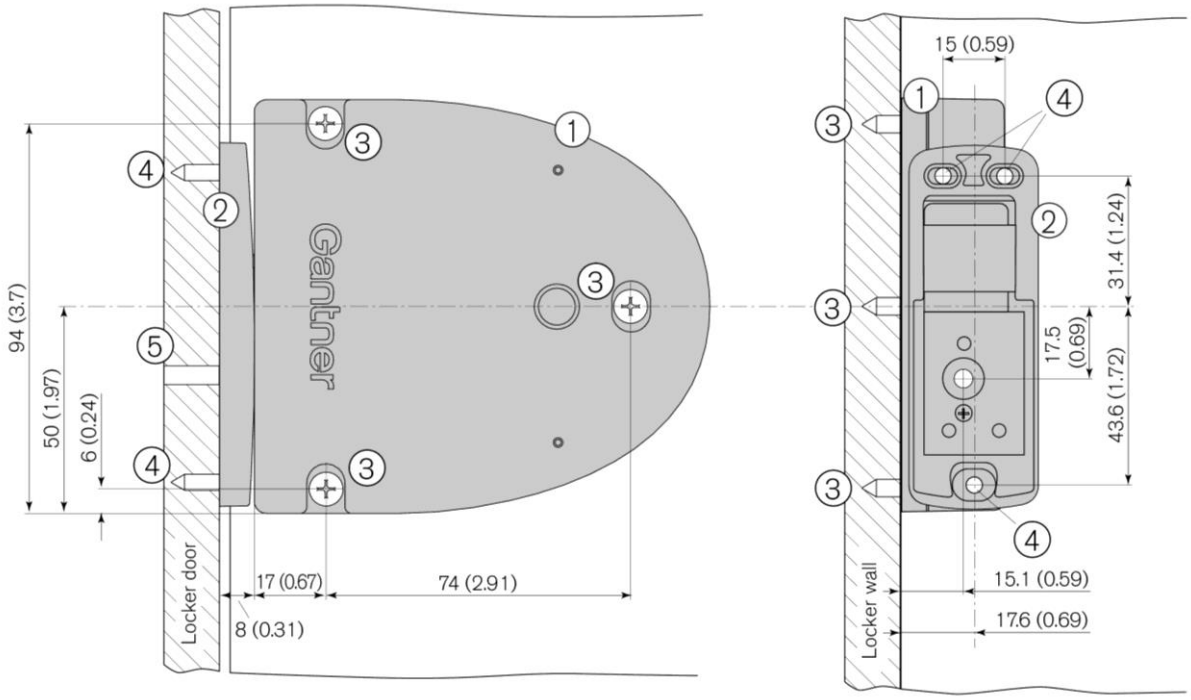
Figure 3.8 *- Dimensions of the GAT NET.Lock BoltSet 7320*

6. Mounting holes for GAT NET.Lock BoltSet on the inner side of the locker door
7. Door shackle
8. Hole for status LED
9. Front cover
10. Metal support

3.10 Installation in Lockers with Non-Metallic Doors

For lockers with glass or plastic doors, see "3.12 Installation in Lockers with Glass Doors".

The GAT NET.Lock 7020 can be installed on the left or right side of the inner locker wall depending on whether it is a right or left-hinged locker door (see "3.7. Definition of the Door Hinge (Right or Left Door)). The GAT NET.Lock Bolt Set 7120 is installed on the inner side of the locker door. One drill hole is required in the locker door for the LED status light. See Figure 3.9 and the following installation instructions.



1. GAT NET.Lock 7020
2. GAT NET.Lock Bolt Set 7120
3. 3 x mounting holes for the GAT NET.Lock 7020
4. 3 x mounting holes for the GAT NET.Lock BoltSet 7120
5. Hole for LED

Figure 3.9 *- Installation in a locker with non-metallic door (right-hinged)*

3.10.1 Installation Instructions for the GAT NET.Lock 7020 and Non-Metallic Doors

Complete the following steps to install the GAT NET.Lock 7020 into lockers with non-metallic doors.

- ► Drill 3 holes (3 in Figure 3.9) for the GAT NET.Lock 7020 into the locker wall inner side.

  NOTE! Position the 3 holes according to the measurements in Figure 3.9.
- ► Plug the connection cable into the GAT NET.Lock 7020 (see "4. ELECTRICAL CONNECTIONS") and loop the cable in the bottom of the lock.
- ► Mount the GAT NET.Lock 7020 with 3 screws (3) onto the locker wall inner side.

  NOTE! Use the correct screws according to the type of locker material, max. Ø 4 mm (0.16 in). The maximum allowed tightening torque of the screws is 2 Nm (1.47 lb-ft).
- ► Mark the mounting holes (4 in Figure 3.9) for the GAT NET.Lock BoltSet 7120 and the hole for the LED (5) onto the locker door inner side. This can be done using the installation diagrams on the previous pages or using the bolt gauge (see “3.4 Bolt Gauge”).
- ► When using the bolt gauge for marking:
  - ► Insert the bolt gauge onto the front of the installed GAT NET.Lock 7020. The bolt gauge can only be inserted in one orientation and snaps onto the lock.
  - ► Close the door so that the center points on the bolt gauge mark the hole positions onto the locker door inner side.

    NOTE! For doors made of softer material, moderate pressure is sufficient. For doors made of harder material, press the door with sufficient force so that the drill markings are visible.
  - ► Remove the bolt gauge from the GAT NET.Lock 7020.
- ► Drill the three marked mounting holes (4) to the required depth and diameter according to the screws used.
- ► Drill the hole for the LED (5) through the locker door. The recommended drill hole diameter is 10 mm (0.4 in) or 8 mm (0.3 in) when using an LED cap (see following instructions).
- ► Attach the bolt set to the locker door inner side using 3 screws.

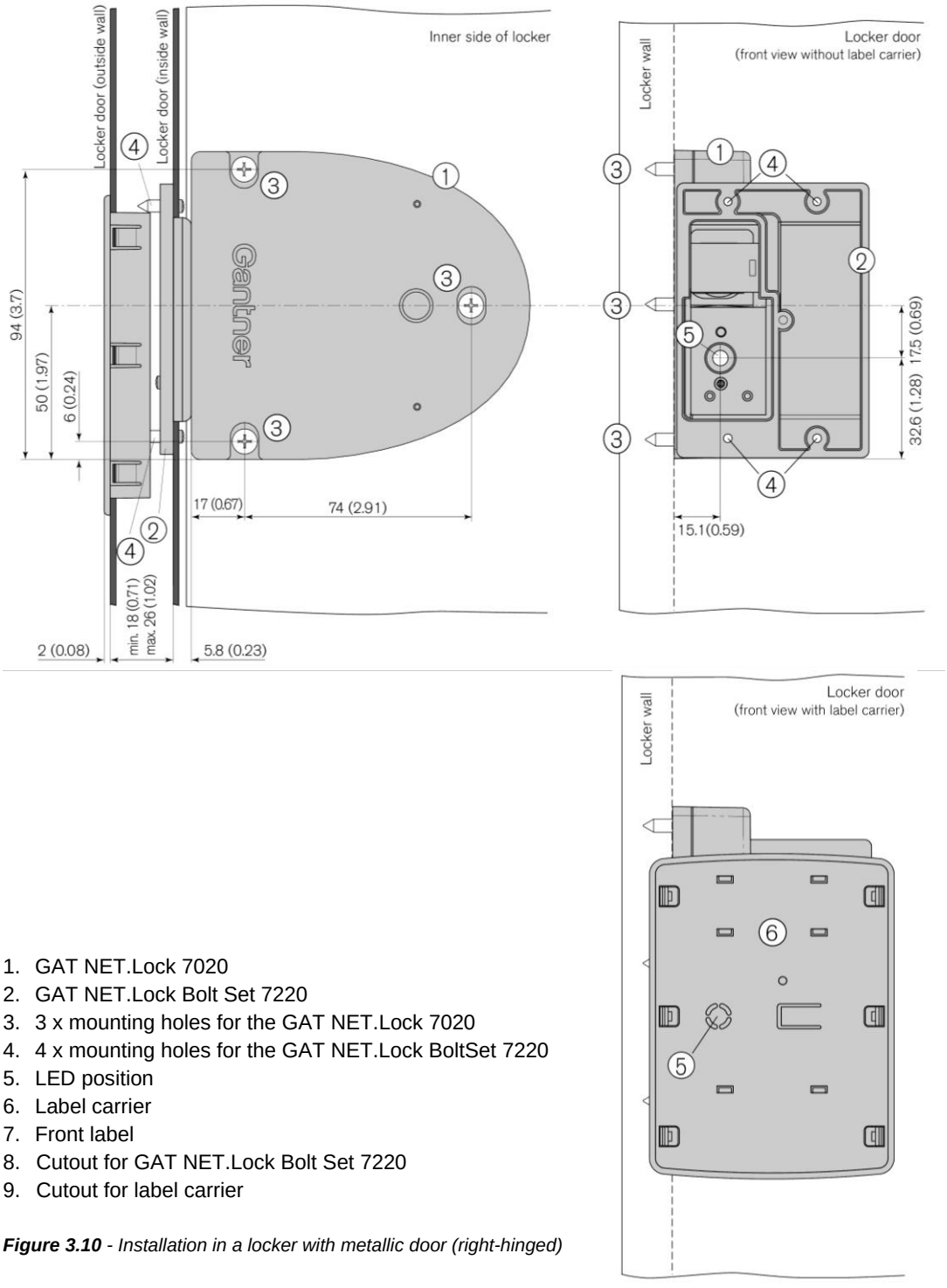
  NOTE! Use the correct screws according to the type of locker material, max. Ø 4 mm (0.16 in). The maximum allowed tightening torque of the screws is 2 Nm (1.47 lb-ft).
- ► To cover the LED hole, a label (GANTNER design or customer-specific design) can be attached to the front of the locker door. A transparent (matt) window for the LED must be incorporated into the label.

  NOTE! For customer-specific labels, ensure that a transparent window for the LED is incorporated in the design and that no metallic films or colors are used.

  Alternatively, the LED hole can be covered using a transparent LED cap (GAT LED Plug 8mm, Part No. 806325). In this case, the LED hole must be 8 mm in diameter.
- ► Test the installation to confirm the following requirements:
  - That the locker door closes easily.
  - That the door shackle inserts correctly into the GAT NET.Lock 7020. The locker door must spring open without assistance after it is unlocked.
  - When the door is pressed shut, ensure there is no gap between the bolt set (2) and the front of the GAT NET.Lock 7020. Ideally the bolt set should touch the front of the lock (see measurement in Figure 3.9).

3.11 Installation in Lockers with Metallic Doors

The GAT NET.Lock 7020 can be installed on the left or right side of the inner locker wall depending on whether it is a right or left-hinged locker door (see “3.7. Definition of the Door Hinge (Right or Left Door)). Two cutouts are required in the door - one in the inner door sheet and one in the outer door sheet. The two parts of the GAT NET.Lock Bolt Set 7220 are mounted into these cutouts in the locker door. The door thickness must be between 18 and 26 mm (0.71 in and 1.02 in). See Figure 3.10 and the following steps installation instructions.



1. GAT NET.Lock 7020
2. GAT NET.Lock Bolt Set 7220
3. 3 x mounting holes for the GAT NET.Lock 7020
4. 4 x mounting holes for the GAT NET.Lock BoltSet 7220
5. LED position
6. Label carrier
7. Front label
8. Cutout for GAT NET.Lock Bolt Set 7220
9. Cutout for label carrier

Figure 3.10 *- Installation in a locker with metallic door (right-hinged)*

3.11.1 Cutouts in the Metallic Locker Door

The following cutouts must be made on the inner and outer walls of the locker door in order to mount the GAT NET.Lock BoltSet 7220 and label carrier. The measurements for the cutouts are as follows.

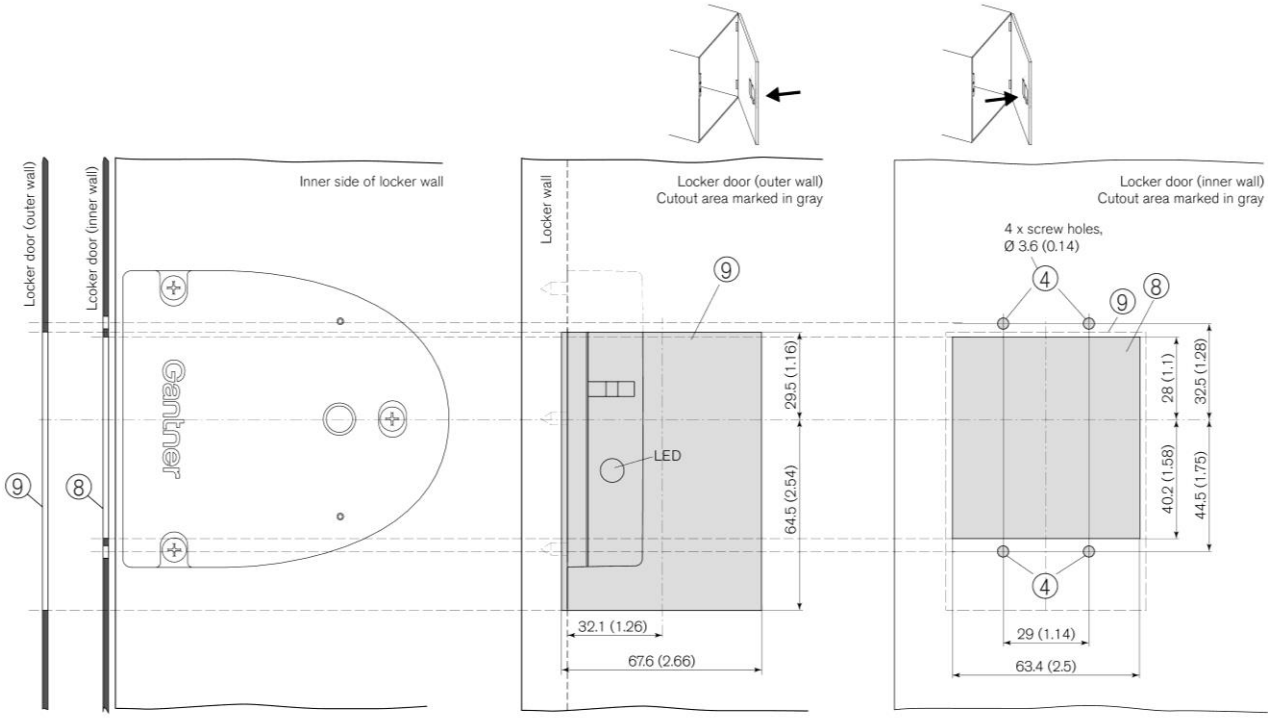


Figure 3.11 *- Cutouts for metallic locker doors*

3.11.2 Installation Instructions for the GAT NET.Lock 7020 and Metallic Doors

Complete the following steps to install the GAT NET.Lock 7020 into lockers with metallic doors.

► Drill 3 holes (3) for the GAT NET.Lock 7020 into the locker wall.

NOTE! Position the 3 holes according to the measurements in Figure 3.10.

► Plug the connection cable into the GAT NET.Lock 7020 (see "4. ELECTRICAL CONNECTIONS") and loop the cable in the bottom of the lock.

► Mount the GAT NET.Lock 7020 with 3 screws (3) on the inside locker wall.

NOTE! Use the correct screws according to the type of locker material, max. Ø 4 mm (0.16 in). The maximum allowed tightening torque of the screws is 2 Nm (1.47 lb-ft).

► Cut out a section, 63.4 mm x 68.2 mm (2.5 in x 2.69 in), in the inner wall of the locker door for the GAT NET.Lock Bolt Set 7220 (8 in Figure 3.11).

► Drill 4 holes (4 in Figure 3.11) in the inner wall of the locker door for mounting the GAT NET.Lock Bolt Set 7220.

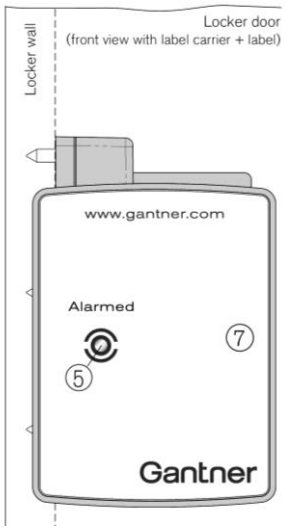
► Cut out a section, 67.6 mm x 94 mm (2.66 in x 3.7 in), in the outer wall of the locker door for the label carrier (9 in Figure 3.11).

► Mount the bolt set onto the inside wall of the locker door using 4 screws.

NOTE! Use pan-head metal screws, Ø 3.5 mm (0.14 in), screw length depends on locker door thickness. The maximum tightening torque of the screws is 2 Nm (1.47 lb-ft).

► Push the label carrier onto the outside wall of the locker door. The label carrier will remain in place with the lashes on the label carrier. To protect against manipulation, a screw can be used to fix the bolt set to the label carrier.

NOTE! Use a countersunk screw, Ø 2.9 mm (0.11 in). Screw length depends on the locker door thickness, e.g., a 15 mm (0.59 in) thick door requires a 19 mm (0.75 in) long screw.



► A label (7) can be attached to the label carrier on the front of the locker door. The label has a transparent (matt) viewing window for the LED to shine through and can be ordered with a GANTNER design or customer-specific design.

NOTE! For customer-specific labels, ensure that a transparent field for the status LED is incorporated in the design and that no metal foil or metal color are used.

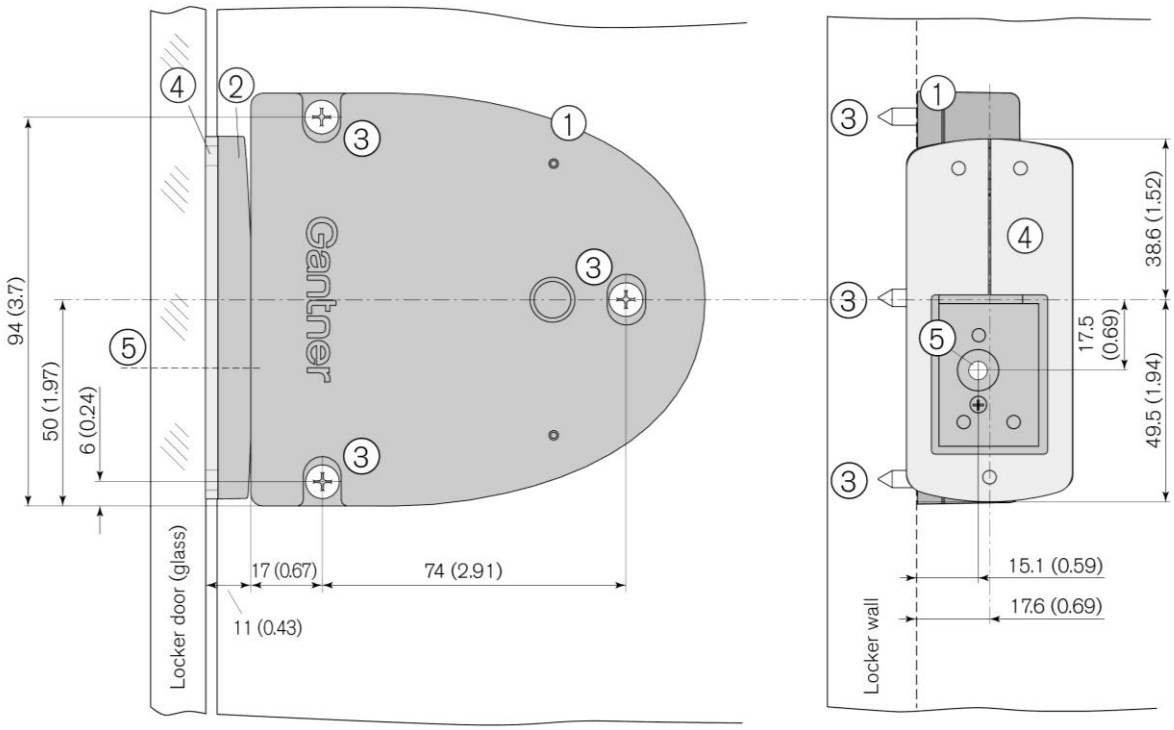
***Figure 3.12** – Label carrier with front label*

► Test the installation to confirm the following requirements:

- That the locker door closes easily.
- That the door shackle inserts correctly into the GAT NET.Lock 7020. The locker door must spring open without assistance after it is unlocked.
- When the door is pressed shut, ensure there is no gap between the bolt set (2) and the front of the GAT NET.Lock 7020. Ideally the bolt set should touch the front of the lock (see measurement in Figure 3.10).

3.12 Installation in Lockers with Glass Doors

The GAT NET.Lock 7020 can be installed on the left or right side of the inner locker wall depending on whether it is a right or left-hinged locker door (see “3.7. Definition of the Door Hinge (Right or Left Door)). The GAT NET.Lock Bolt Set 7320 with the metal support attaches to the inner side of the locker door using adhesive. A void in the printing on the locker door or door label may be necessary for the status LED to be visible. See in Figure 3.13 and the following installation instructions.



1. GAT NET.Lock 7020
2. GAT NET.Lock BoltSet 7320
3. 3 x mounting holes for the GAT NET.Lock 7020
4. Metal support for adhering the GAT NET.Lock BoltSet 7320 (the metal support is included with the GAT NET.Lock BoltSet 7320 and is delivered attached to the bolt set).
5. LED position

Figure 3.13 *- Installation in a locker with glass door (right-hinged)*

3.12.1 Installation Instructions for the GAT NET.Lock 7020 and Glass Doors

Complete the following steps to install the GAT NET.Lock 7020 into lockers with glass doors.

► Drill 3 holes (3) for the GAT NET.Lock 7020 into the locker wall.

NOTE! Position the 3 holes according to the measurements in Figure 3.13.

► Plug the connection cable into the GAT NET.Lock 7020 (see "4. ELECTRICAL CONNECTIONS") and loop the cable in the bottom of the lock.

► Mount the GAT NET.Lock 7020 with 3 screws (3) on the inside locker wall.

NOTE! Use the correct screws according to the type of locker material, max. Ø 4 mm (0.16 in). The maximum allowed tightening torque of the screws is 2 Nm (1.47 lb-ft).

► Use glass adhesive to attach the GAT NET.Lock BoltSet 7320 according to the measurements in Figure 3.13 on the inside of the glass door.

NOTE! Before the mass production of lockers begins, testing must be carried out by the locker manufacturer to ensure that the glass adhesive meets the strength requirements. Always follow the adhesive manufacturer's instructions.

► A label can be attached to the front of the locker door. The label has a transparent (matt) viewing window for the LED to shine through and can be ordered with a GANTNER design or customer-specific design.

NOTE! For custom labels, ensure that a transparent field for the status LED is incorporated in the design and that no metal foil or metal color are used.

► Test the installation to confirm the following requirements:

- That the locker door closes easily.
- That the door shackle inserts correctly into the GAT NET.Lock 7020. The locker door must spring open without assistance after it is unlocked.
- When the door is pressed shut, ensure there is no gap between the bolt set (2) and the front of the GAT NET.Lock 7020. Ideally the bolt set should touch the front of the lock (see measurement in Figure 3.13).

3.13 Installation of the GAT NET.Controller M/S 7020 and GC7.2000 M

The GAT NET.Controller M 7020, GC7.2000 M (lite), and GAT NET.Controller S 7020 must be placed in the vicinity of the connected GAT NET.Lock 7020 locks to keep cable lengths to a minimum. Usually the controllers are placed on top of or underneath the lockers.
The controllers must be placed in a secure location that is protected from unauthorized access. If the controller is installed more than 2 meters above the floor, the controllers must be installed with three screws attached to the mounting holes provided in the rear part of the housing.

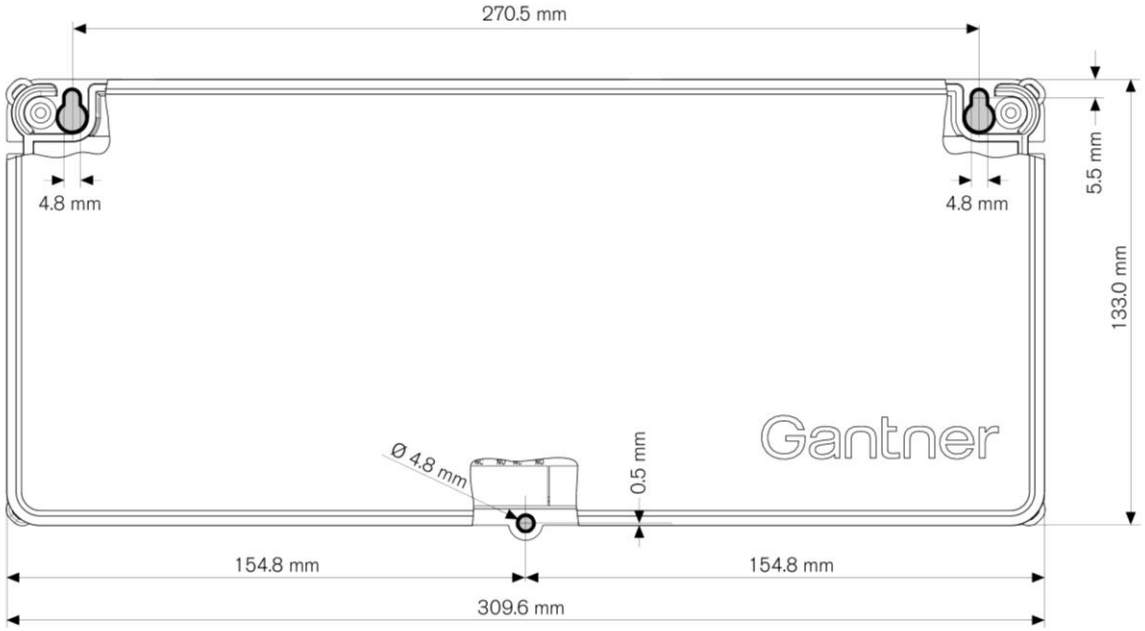
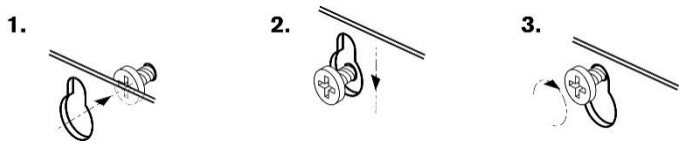


Figure 3.14 *- Mounting of the GAT NET.Controller M/S 7020*

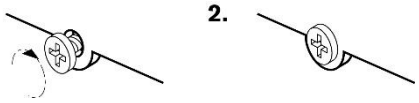
3.13.1 Instructions for Mounting the GAT NET.Controller M/S 7020 and GC7.2000 M (lite)

- ► Observe the measurements shown in Figure 3.14 and drill 3 holes for the controller mounting points. Use the correct drill diameter required by the screws and/or wall plugs (screws up to max. M4). The screws and any necessary wall plugs must be selected so that they can withstand the weight of the controller (see the technical data for the weight of the GAT NET.Controller M/S 7020 and GC7.2000 M (lite)). The 4 mm (0.16 in) thickness of the controller housing wall must also be considered when selecting the screw length.
- ► Screw in the top two screws until the head protrudes approximately 5 mm (0.19 in) out from the wall.
- ► Attach the controller housing to the top two screws and push down until the housing stops against the screws. If necessary, remove the controller and tighten the screws as required before rehanging.



► Screw the third screw into the central lower mounting hole and tighten firmly.

1. **2.**



► Ensure that the controller is securely fastened and cannot be removed.

4. ELECTRICAL CONNECTIONS

⚠CAUTION

Electric Shock

➔ *Touching the power cables may result in electrical shock.*

- Electrical connections may only be performed by the specified target group.
- Always follow the instructions described in this chapter.

NOTICE

Damage or Malfunction of the GAT NET.Lock 7020

- *Read the information in this chapter carefully before completing the electrical connections.*
- *Complete the cabling connections in the sequence and at the terminals/connectors described.*

4.1 Target Group

This chapter describes the electrical connections required for the GAT NET.Lock 7020 system. The information is intended for trained personnel responsible for completing the electrical connections. Observe the legal requirements for electrical installations where the GAT NET.Lock 7020 is being installed, e.g., electrical connection only by suitably trained electricians, material specifications, and tools used. Also observe the environmental operating conditions as specified in chapter “7 TECHNICAL DATA”.

4.2 System Structure

The GAT NET.Lock 7020 locks connect to the GAT NET.Controller S 7020 sub controllers. The sub controllers are networkable via the serial RS-485 interface and connect to a GAT NET.Controller M 7020 main controller or GC7.2000 M (lite). The main controllers connect via Ethernet to a host computer or server.

See the diagram “Figure 2.1 – Typical application of the GAT NET.Lock 7020 system” for an example of the GAT NET.Lock 7020 system.

4.3 GAT NET.Lock 7020

4.3.1 Power Supply

The GAT NET.Lock 7020 (P) locks are supplied DC 5 V, or DC 24 V for the GAT NET.Lock 7020 USB (P), by the sub controller via the connection cable (see “7 TECHNICAL DATA”).

4.3.2 Connection Cable

CAUTION!

- Only use original cables from GANTNER Electronic GmbH.
- Do not modify (shorten or extend) the lock connection cable in any way.
- If the standard 5 m cable is too short, use a GAT NET.Lock Cable Extension 3m (Part No. 810021) to extend the cable length to 8 m. Alternatively, two GAT NET.Lock Cable 5m cables can be joined together using a GAT NET.Lock Connector (Part No. 442123).
- The maximum cable length between the GAT NET.Lock 7020 and the sub controller is 10 m (26 ft).

The GAT NET.Lock Cable 5m (Part No. 734430) connection cable is included in the scope of supply. The cable is used to connect the GAT NET.Lock 7020 to a GAT NET.Controller S 7020 sub controller and has a male 4-pin MOLEX Micro-Fit 3.0™ connector on both ends. The cable is the same as used with the previous generation GAT NET.Lock 7000 locks. If you are upgrading from the GAT NET.Lock 7000 to the GAT NET.Lock 7020, the existing cables can be used.

4.3.3 Connection Cable Installation

There are two options for installing the GAT NET.Lock 7020 connection cable.

Option 1: Cable exit outside locker housing

There are five outlets in the housing of the GAT NET.Lock 7020 where the cable can exit (see Figure 4.1). Depending on the orientation of the GAT NET.Lock 7020 and the cable in the locker, select the outlet that allows the cable to be installed with minimum effort. Remove the plastic piece from the outlet that you intend to use.

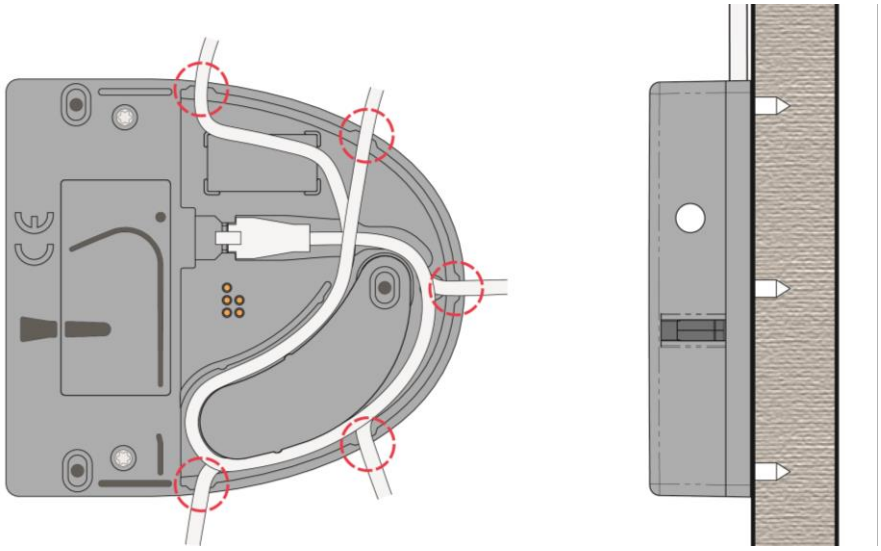


Figure 4.1 *- GAT NET.Lock 7020 cable outlets*

Option 2: Cable exit inside locker housing

This method involves a channel or space in the locker housing being used to route the cable. A hole is drilled in the locker wall through which the cable is fed and over which the GAT NET.Lock 7020 is installed, thereby providing a neat “cable-free” appearance. For this method, install the connection cable as shown in Figure 4.2. The circle (1 in Figure 4.2) represents the cable-exit location in the locker wall. This cable installation method ensures there is sufficient spare cable at the lock end to aid future lock exchanges or modifications.

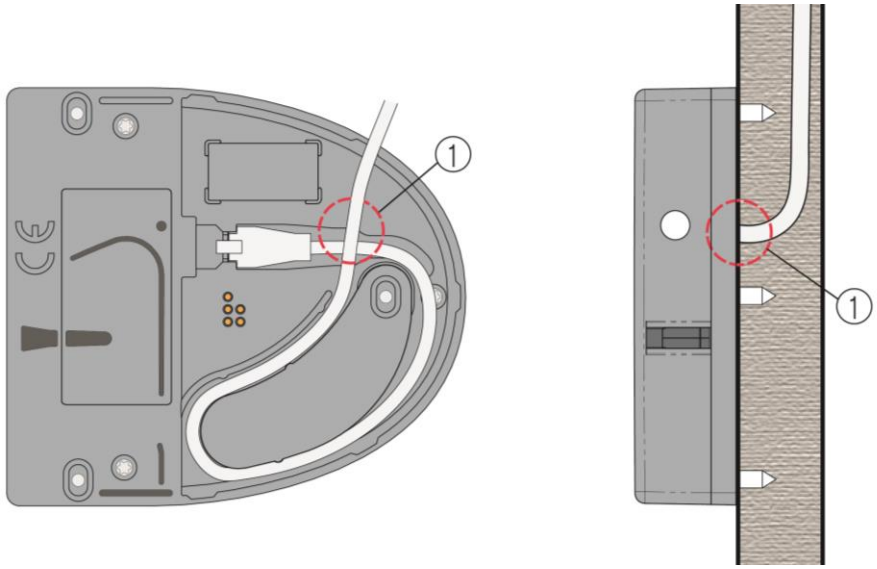


Figure 4.2 *- GAT NET.Lock 7020 cable routing*

4.4 GAT NET.Controller S 7020

4.4.1 GAT NET.Lock 7020 Connection

CAUTION!

- Do not connect the GAT NET.Lock 7020 locks to the GAT SMART.Controller S 7000 as this controller only operates with GAT SMART.Lock 7001 locks. The GAT NET.Controller S 7020 sub controller must be used to connect the GAT NET.Lock 7020.
- It is possible to connect the previous GAT NET.Lock 7000 locks to the GAT NET.Controller S 7020 sub controller; however, only when the controller is unpowered. If a GAT NET.Lock 7000 is connected to a powered GAT NET.Controller S 7020 sub controller that has only GAT NET.Lock 7020 locks connected (24 V operation), the GAT NET.Lock 7000 is destroyed as 24 V is too much. If a GAT NET.Lock 7000 is connected to an unpowered controller and power is turned on, the GAT NET.Controller S 7020 detects the GAT NET.Lock 7000 and switches the system to 5 V. Both the GAT NET.Lock 7000 and the GAT NET.Lock 7020 can operate together as normal in this situation, but the USB and LED functions are disabled.

NOTE!

- It is possible to connect the GAT NET.Lock 7020 (USB) P (with 125 kHz reader) and the GAT NET.Lock 7020 (USB) (13.56 kHz reader only) together on the same controller.

Depending on the type of sub controller, up to 24 GAT NET.Lock 7020 can be connected per sub controller. The locks are identified via the channel numbers indicated on the side panel of the sub controller. Therefore, it is important where the locks are connected and how the locking system is configured.

► Locate the sub controllers in a position that allows the locks to connect using minimal cabling, e.g., directly on top of or underneath the lockers.

► Connect the GAT NET.Lock Cable from the GAT NET.Lock 7020 locks to the 4-pin MOLEX connectors on the side panel of the GAT NET.Controller S 7020.

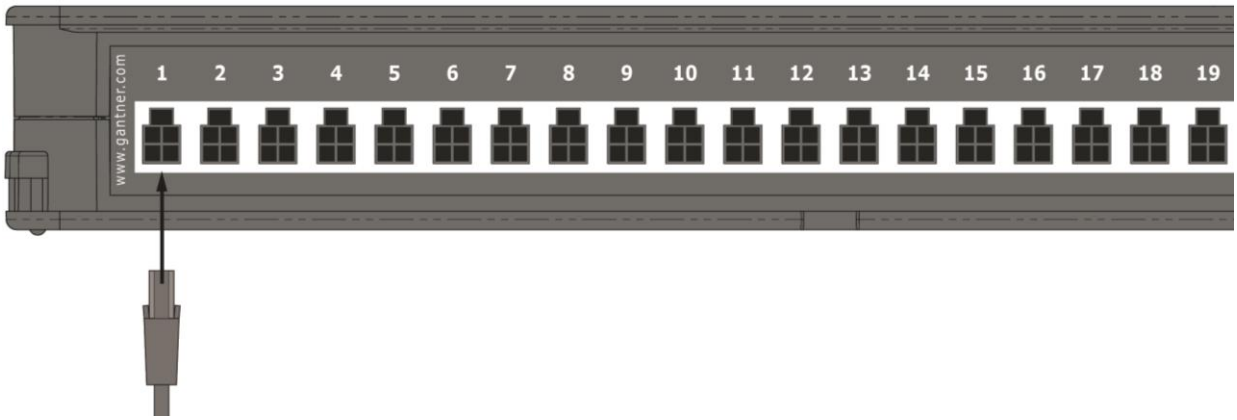


***Figure 4.3** – Connecting the GAT NET.Lock 7020 to a GAT NET.Controller S 7020 sub controller*

4.4.2 Sub Controller Connection

The sub controllers are interconnected via the serial RS-485 interface. The same RS-485 interface is used to connect the sub controllers to a GAT NET.Controller M 7020 main controller or GC7.2000 M (lite).
RJ45 plugs are used for connecting the RS-485 cables to the GAT NET.Controller S 7020. It is recommended to use at least CAT.5 (STP) cable for all network connections.

For the RS-485 interface, it is important to differentiate between the IN and OUT sockets.

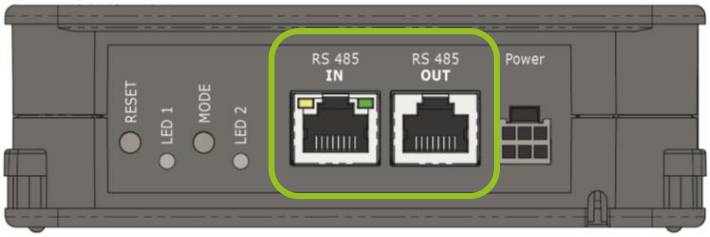


***Figure 4.4** – RS-485 connection on the GAT NET.Controller S 7020*

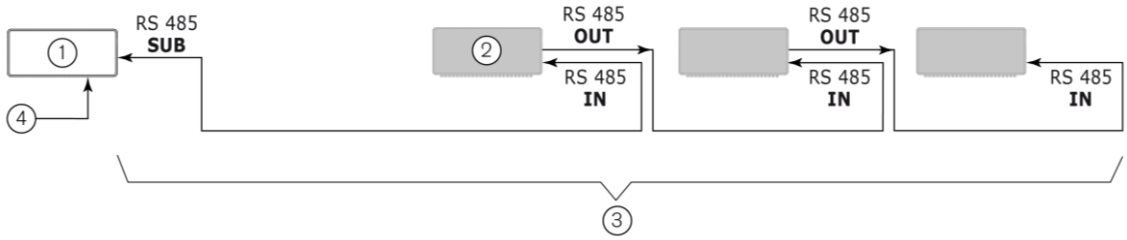
There are two options for connecting the RS-485 cabling to the sub controllers.

Option 1 – Series Connection

► Connect the incoming line (either from the main controller or the previous sub controller) to the “RS 485 IN” socket.

► Connect the outgoing line (going to the next sub controller) to the “RS 485 OUT” socket.

NOTE! This is particularly important when the power supply is being forwarded on to the following sub controllers (refer to “4.4.4 Power Supply Connection”).



1. Main controller
2. Sub controller
3. Max. 800 m length per RS-485 line
4. Ethernet

***Figure 4.5** – Series connection of the GAT NET.Controller S 7020*

NOTE! Observe the following values for the number of connectable controllers per interface:
- GAT NET.Controller M 7020 and GC7.2000 M: max. 8 sub controllers per RS-485 line.
- GAT NET.Controller M 7020 Light and GC7.2000 M lite: max. 3 sub controllers per RS-485 line.
- Max. cabling length per RS-485 line: 800 m (2624 ft).

Option 2 – Parallel Connection

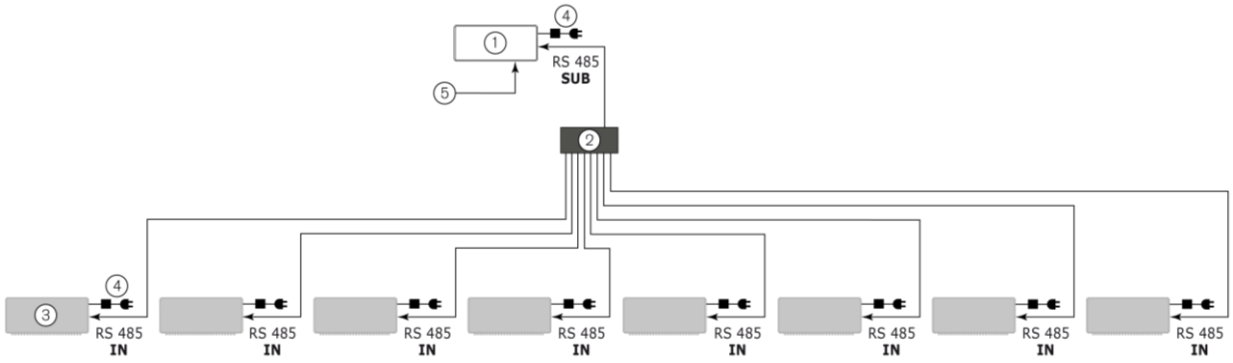
For this connection option, an RS-485 splitter is required, which is available to order from GANTNER (RS-485 Splitter 8port CAT 5; Part No. 1102453).

Figure 4.6 *– RS-485 Splitter 8port CAT 5*

- ► Connect the 1.5 m RJ45 cable (connected to the RS-485 splitter) to the "RS 485 SUB" socket on the main controller.
- ► Connect one network cable from the output sockets of the RS-485 splitter to each sub controller.

NOTE!

- Max. 8 sub controllers can be connected per RS-485 splitter.
- Each sub controller must be powered by a separate power supply.
- Max. cable length from the RS-485 splitter to the sub controller: 100 m (328 ft).



1. Main controller
2. RS-485 Splitter 8port CAT 5
3. Sub controller
4. Power supply
5. Ethernet

Figure 4.7 *– Parallel connection of the GAT NET.Controller S 7020*

4.4.3 Sub Controller to Main Controller Connection

The sub controllers connect to the main controllers via the RS-485 interface using RJ45 plugs.

- ► GAT NET.Controller M 7000 (Light): Connect the RJ45 plug to the "RS 485 SUB" socket on the main controller.

  NOTE! The "RS 485 ADD-ON" socket is reserved for future use and must not be used to connect the sub controllers.

- ► GC7.2000 M (lite): Connect the RJ45 plug to the "RS 485 SUB 2" socket on the GC7.2000 M (lite).

  NOTE! The "RS 485 SUB 1" socket is reserved for future use and must not be used to connect the sub controllers.

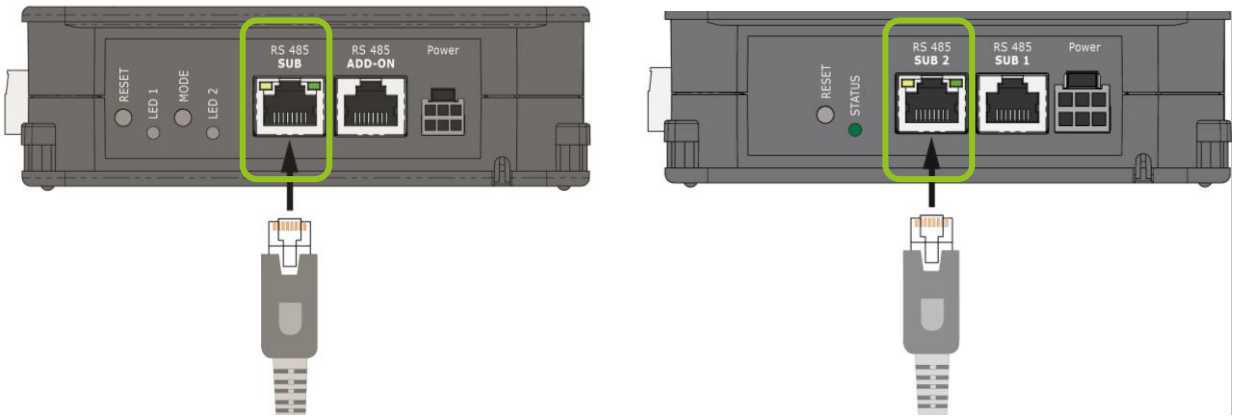


***Figure 4.8** – Connecting the GAT NET.Controller S 7020 to the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

4.4.4 Power Supply Connection

The GAT NET.Controller S 7020 connects to the mains power supply via an external power supply. Depending on the country, mains voltage may be UAC 230 V or UAC 115 V (refer to "7 TECHNICAL DATA").
GANTNER provides two types of power supplies for the sub controller depending on whether the GAT NET.Lock 7020 locks connected to the sub controller have USB or not. The correct type of power supply must be used:

Type of GAT NET.Lock 7020	Required Power Supply
GAT NET.Lock 7020	GAT NET.Power Supply 7020 100-240V / VI (Part No. 1100051)
GAT NET.Lock 7020 P	GAT NET.Power Supply 7020 100-240V / VI (Part No. 1100051)
GAT NET.Lock 7020 USB	GAT NET.Power Supply 7020 USB 100-240V / VI (Part No. 1100052)
GAT NET.Lock 7020 USB P	GAT NET.Power Supply 7020 USB 100-240V / VI (Part No. 1100052)

NOTE!

- Pay attention to the direction of supply as power is only forwarded via the “RS 485 OUT” socket (see Figure 4.5).
- Max. length per RS-485 line: 800 m (2624 ft).

To calculate the requirements for an emergency power supply (UPS), allow for a typical power consumption of 3 W (+2 W reserve) per main controller and 90 W per sub controller fully connected with locks.

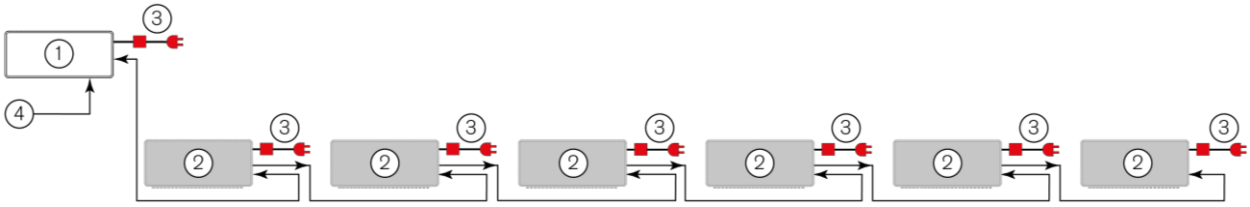
There are two options for connecting the power supplies to the sub controllers.

Option 1: Separate power supply

► For systems that have GAT NET.Lock 7020 USB locks, connect one GAT NET.Power Supply 7020 USB 100-240V / VI to each sub controller.

NOTE! The USB power supply can only power one sub controller regardless of whether the USB function is used or not. The power cannot be forwarded to the next controller as shown in option 2.

► For systems that do not have any GAT NET.Lock 7020 USB locks and are connected in series (see “4.4.2 Sub Controller Connection”), connect one GAT NET.Power Supply 7020 100-240V / VI to each sub controller. As an alternative for non-USB systems, the number of power supplies can be reduced as shown in option 2.



1. Main controller
2. Sub controller
3. Power supply
4. Ethernet

Figure 4.9 *– Option 1 - Separate power supplies*

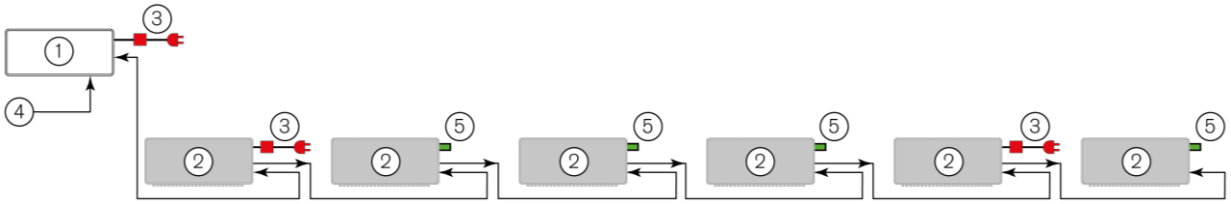
Option 2: Shared power supply

NOTE! This option is only suitable for systems that do not use any GAT NET.Lock 7020 USB locks.

► Connect one GAT NET.Power Supply 7020 100-240V / VI to the main controller and the first and fifth sub controllers only. A power supply must always be connected to the main controller and the first sub controller. If 5 or more sub controllers are used in one line, a second power supply is required at the fifth controller.

► For the sub controllers that are not directly connected to a power supply, insert one GAT NET.Power Plug (included with the sub controller) into the power connector.

- The power is then forwarded on to the remaining sub controllers via the RS-485 line.



1. Main controller
2. Sub controller
3. Power supply
4. Ethernet
5. GAT NET.Power Plug

Figure 4.10 *– Option 2 - Shared power supply*

Connecting the power supply to the sub controller

► Connect the power supply to the MOLEX plug labelled “Power” on the controller.

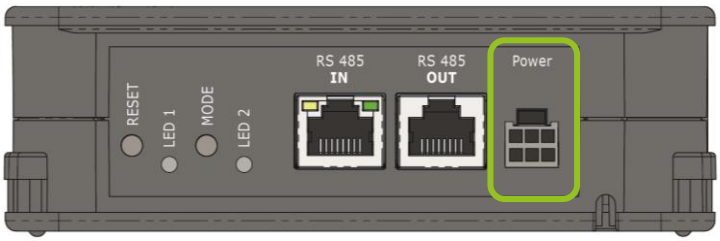


Figure 4.11 *- Power supply connection on the GAT NET.Controller S 7020*

For controllers with a non-USB power supply, the power supply can be stored in the designated storage space on the side of the controller.

► Remove the compartment cover (1),

► Place the power supply into the compartment and insert the cabling into the designated slots on the base of the controller.

► Replace the compartment cover.

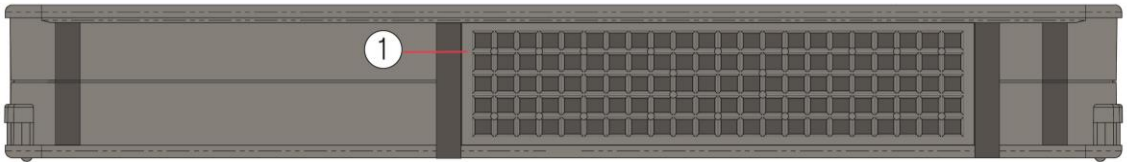


Figure 4.12 *- Power supply storage location*

4.5 GAT NET.Controller M 7020

4.5.1 Ethernet Connection

The connection of several GAT NET.Controller M 7020 or GC7.2000 M (lite) controllers as well as the connection of the main controller to a PC/server is performed via Ethernet.

► Connect the Ethernet cable to the RJ45 plug labelled “Ethernet” on the side of the GAT NET.Controller M 7020 or GC7.2000 M (lite).

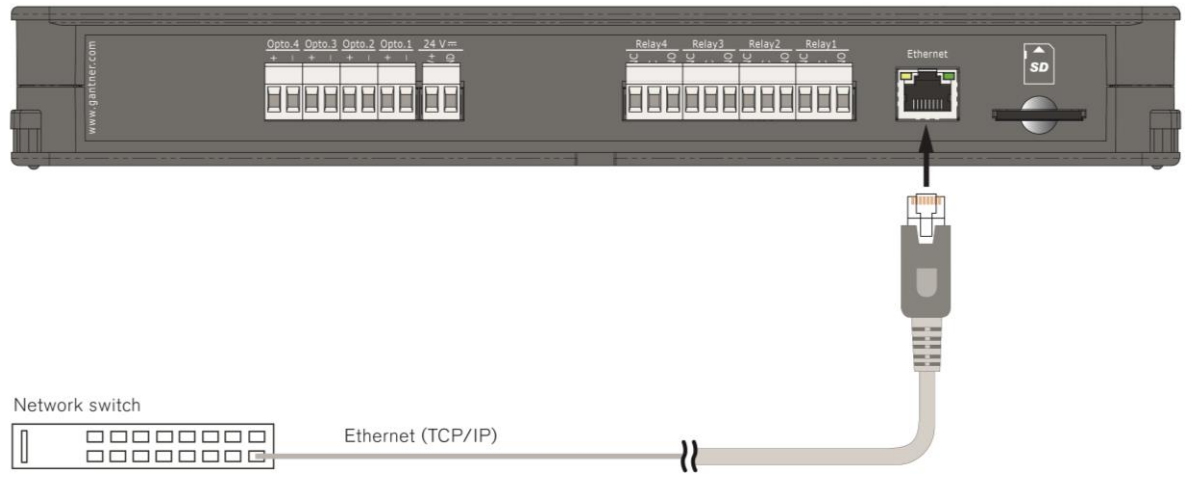


Figure 4.13 *- GAT NET.Controller M 7020 Ethernet connection*

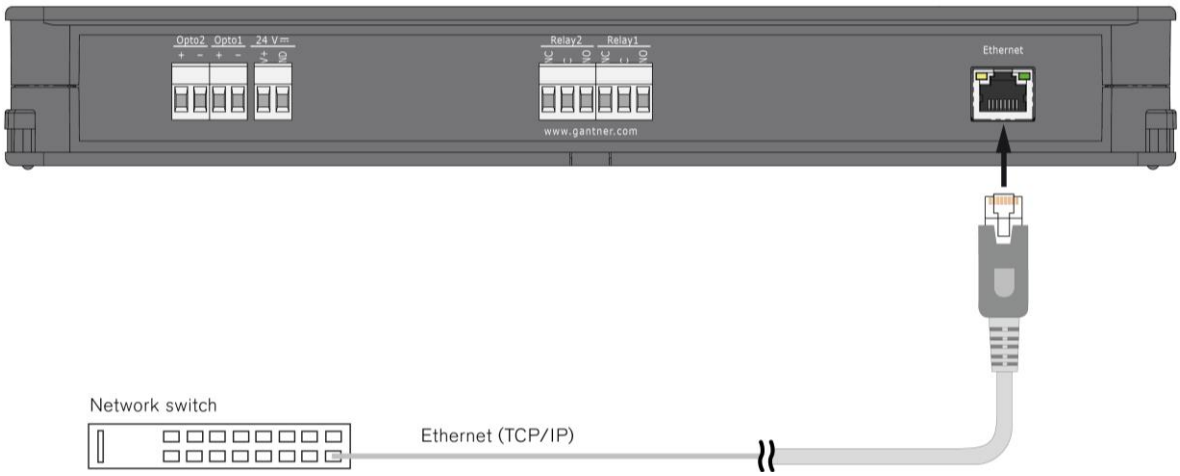


Figure 4.14 *– GC7.2000 M (lite) Ethernet connection*

4.5.2 Power Supply Connection

The GAT NET.Controller M 7020 main controller and GC7.2000 M (lite) connect to the mains power supply via an external power supply. The GAT NET.Power Supply 7020 100-240V / VI (Part No. 1100051) must be used to power the GAT NET.Controller M 7020. Depending on the country, mains voltage may be UAC 230 V or UAC 115 V (refer to "7 TECHNICAL DATA”).

► Connect the power supply to the MOLEX plug labelled “Power” on the controller.

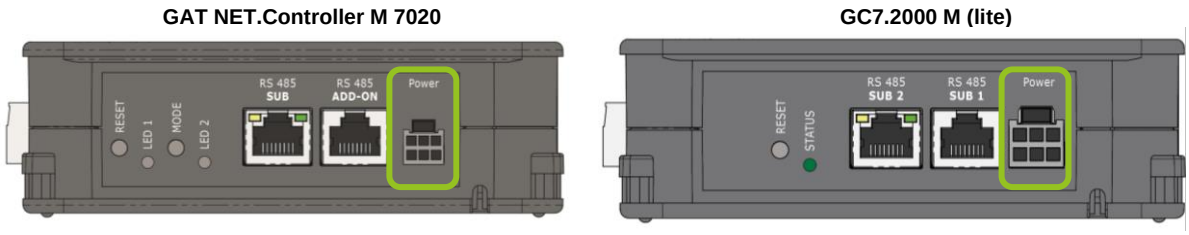


Figure 4.15 *- Power supply connection on the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

For controllers with a non-USB power supply, the power supply can be stored in the designated storage space on the side of the controller.

► Remove the compartment cover (1).

► Place the power supply into the compartment and insert the cabling into the designated slots on the base of the controller.

► Replace the compartment cover.

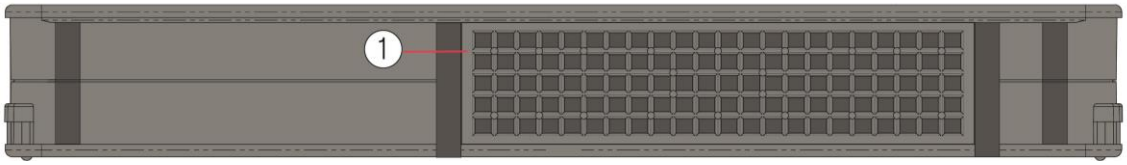


Figure 4.16 *- Power supply storage location*

4.5.3 Relay Connection

The GAT NET.Controller M 7020 has four potential-free relay outputs (1 in Figure 4.17) that can be used to send signals when a certain event occurs. The main controller also has four optocoupler inputs (2 in Figure 4.17) that are currently reserved for future use.

The GAT NET.Controller M 7020 Light is intended for smaller systems and has no inputs and outputs.

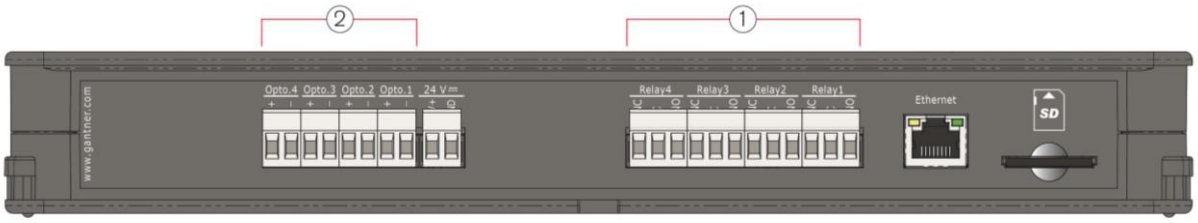


Figure 4.17 *– Inputs and outputs on the GAT NET.Controller M 7020*

The GC7.2000 M and GC7.2000 M lite both have 2 potential-free relay outputs (No. 1 in Figure 4.18) for signal output and 2 digital signal inputs in the form of optocouplers (No. 2 in Figure 4.18), which are intended for future applications.

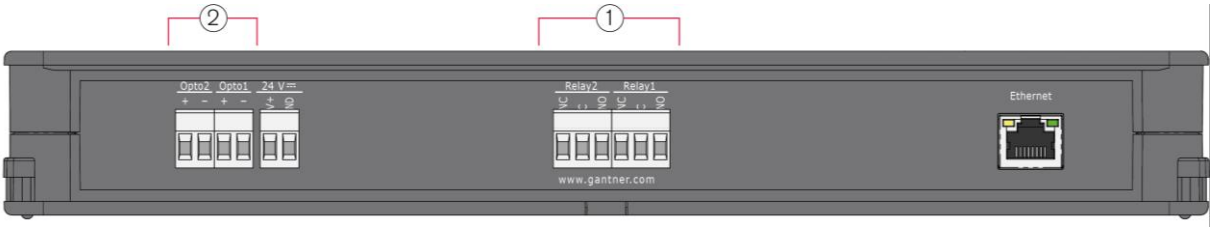


***Figure 4.18** – Inputs and outputs on the GC7.2000 M (lite)*

Some application examples for the relay outputs include:

- To trigger an alarm notification system. If a break-in is attempted at a locker, an alarm is triggered in Relaxx. An additional alarm notification system with flashing light and beeper can be installed in a visible position to immediately alert staff of the security problem.
- To trigger a locker occupancy system. The relay could be configured to indicate, e.g., via a display installed above the locker room entrance, when the controlled lockers are almost fully occupied.

The outputs connect to the corresponding inputs of the controlled device. The supply voltage can be taken from the GAT NET.Controller M 7020 or GC7.2000 M (lite) or from an independent voltage source (depending on the requirements of the device being controlled).
Figure 4.19 and Figure 4.20 provide an example of how an external device (3) with its own power supply can be connected to the relay output and also an example of how an external device (4) can be connected to the optocoupler input.

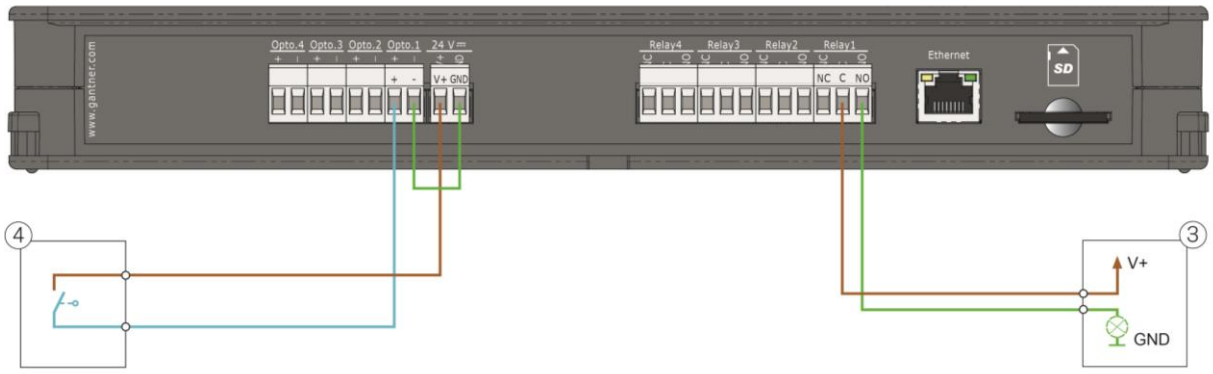


***Figure 4.19** – Relay and optocoupler connection example for the GAT NET.Controller M 7020*

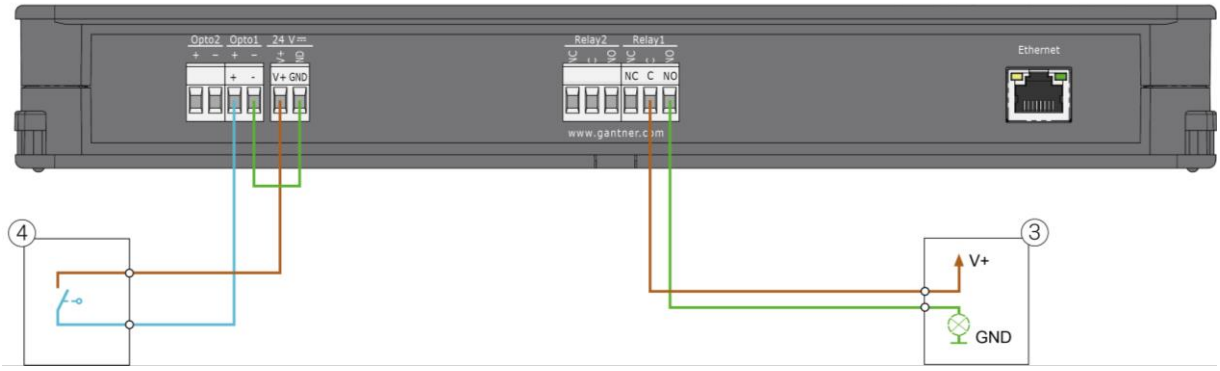


Figure 4.20 *– Relay and optocoupler connection example for the GC7.2000 M (lite)*

NOTE! Adhere to the max. permitted switching voltages and currents as indicated in "7 TECHNICAL DATA". Also read the documentation of the connected device(s) for more information about the electrical connections.

5. CONFIGURATION AND OPERATION

NOTE! To ensure that all the latest features and functions are available after you install the system, GANTNER recommends updating the firmware of the GAT NET.Lock 7020, GAT NET.Controller S 7020, GAT NET.Lock Controller M 7020, and GC7.2000 M (lite) to the latest version. The latest firmware is available via the partner area of the GANTNER website or from your GANTNER representative.

5.1 GAT NET.Lock 7020 Antenna Calibration

The antenna of the GAT NET.Lock 7020 must be calibrated so that an optimal reading range for the RFID data carriers is obtained. The antenna calibration process for the GAT NET.Lock 7020 can be performed automatically via PC software or by pressing the MODE button of the GAT NET.Controller 7020 sub controller as shown in Figure 5.1.

NOTE! The locker door must be locked during antenna calibration to ensure the test conditions meet the operating conditions.

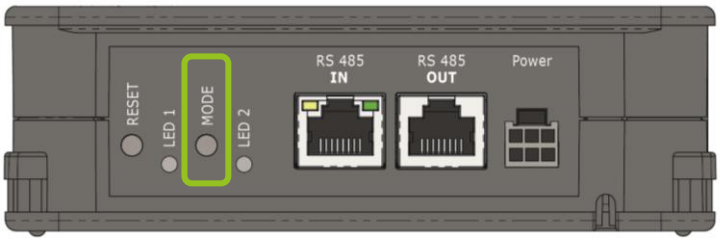


Figure 5.1 *– MODE button for automatic antenna calibration*

Proceed with these steps:

- ► Lock all locker doors, e.g., with a master data carrier.
- ► Press the MODE button once.
    - The antenna adjustment is completed in less than 1 second.

5.2 Restarting a Controller

In certain situations, e.g., after a network problem, it may be helpful to restart a main or sub controller. This means that the software application in the device is restarted.

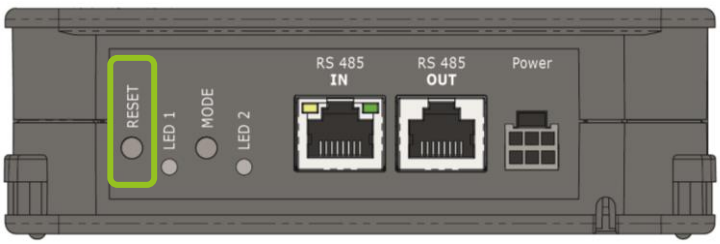


Figure 5.2 *– RESET button for restarting a controller (sub controller shown)*

The process for restarting a main or sub controller is identical. Proceed with these steps:

► Press and hold the RESET button for 5 seconds.
  - LED 2 (for the GAT NET.Controller S/M) or STATUS (for the GC7.2000 M (lite)) flashes red and green.

► Release the RESET button.
  - The controller restarts after approx. 5 seconds. The configuration parameters remain unchanged.

5.3 Resetting a Controller to the Default Settings

Resetting a main or sub controller to the default settings deletes all configuration parameters saved in the controller and returns it to that same state it was in at the time of delivery.

NOTE! The resetting of a controller must only be performed by an authorized service technician. After resetting the controller, the entire locker system must be reconfigured via software.

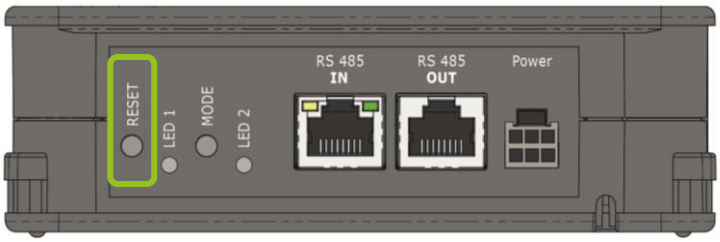


***Figure 5.3** – RESET button for resetting a controller (Sub controller shown)*

The process for resetting a main or sub controller is identical. Proceed with these steps:

► Press and hold the RESET button for approximately 12 seconds.
  - LED 1 (for the GAT NET.Controller S/M) or STATUS (for the GC7.2000 M (lite)) flashes blue.

► Within 3 seconds, release the RESET button then press it again.
  - The configuration parameters reset to default. The LEDs of the connected locks flash red/green while the controller is being reset.

5.4 Controller LED Signaling and Buttons

5.4.1 Sub Controller

To display different operating states and to start certain functions, the following LED indicators and buttons are provided on the GAT NET.Controller S 7020.

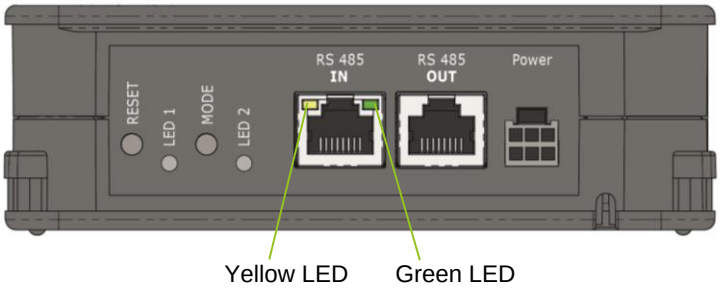


Figure 5.4 *- LEDs and buttons provided on the GAT NET.Controller S 7020*

BUTTONS		
RESET	1. See "5.2. Restarting a Controller" 2. See "5.3 Resetting a Controller to the Default Settings"	
MODE	See "5.1 GAT NET.Lock 7020 Antenna Calibration "	
LEDs		
RS 485 IN (yellow)	The connection to the main controller has been established	
RS 485 IN (green)	RS-485 communication active	
LED 1 (blue)	Lock activated/controlled	
LED 2 (green/red)	Red:	Emergency operation (no connection to main controller; no connection to server/software)
	Red flashing:	Emergency operation (connection to main controller OK; no connection to server/software)
	Green:	Normal operation (connection to main controller and server/software OK)
	Red/green flashing:	Bootloader mode (a firmware update is currently being loaded or there is no firmware installed)

Table 5.1 *- Buttons and LEDs of the GAT NET.Controller S 7020 sub controller*

5.4.2 Main Controller

To display different operating states and to start certain functions, the following LED indicators and buttons are provided on the GAT NET.Controller M 7020 and GC7.2000 M (lite).

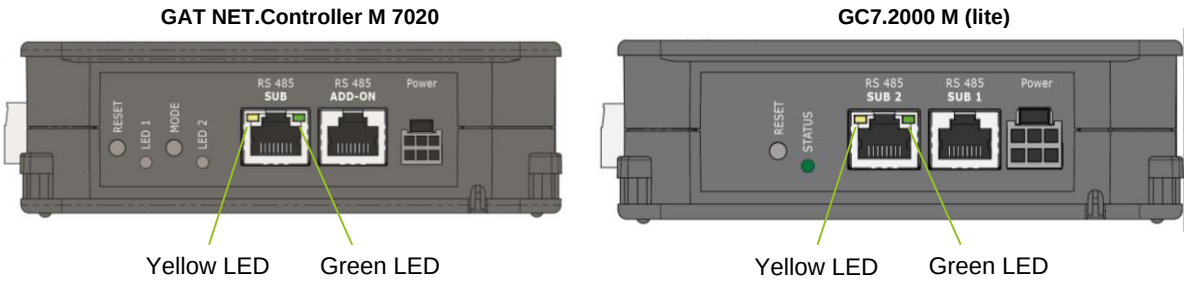


Figure 5.5 *- LEDs and buttons on the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

BUTTONS		
RESET	1. See "5.2. Restarting a Controller" 2. See "5.3 Resetting a Controller to the Default Settings"	
MODE	Reserved for future use	
LEDs		
RS 485 IN (yellow)	The connection with the sub controller has been established	
RS 485 IN (green)	RS-485 communication active	
LED 1 (blue)	Reserved for future use	
LED 2 (green/red)	Red:	Emergency operation (no connection to server/software)
	Green:	Normal operation (connection to server/software OK)
	Red/green flashing:	Bootloader mode (a firmware update is currently being loaded or there is no firmware installed)

Table 5.2 *- Buttons and LEDs of the GAT NET.Controller M 7020 main controller and GC7.2000 M (lite)*

5.5 GAT NET.Lock 7020 Signalization Overview

The GAT NET.Lock 7020 displays current status information via an integrated multi-color status LED. The status LED is designed to remain visible through a hole in the locker door even when the locker door is closed (provided the GAT NET.Lock 7020 is installed correctly). The following tables show the different LED signals and their corresponding lock states.

5.5.1 General (applicable for all modes)

LED Signal (each field = 0.5 second)								Status	Configurable
1	2	3	4	5	6	7	8		
								Not configured (default setting on delivery)	
								Door is open, lock is unlocked (also when pre-closed)	
								Door is closed, ready to lock	
								Door is closed and locked	
								Door is closed and locked, data carrier not valid	
								ALARM (recommended with beeper)	X (beeper)
								Door is closed and locked, lock is disabled	
								Door is open, lock is disabled	
								Door is open, lock is in cleaning mode	X
								Door is closed and locked, lock is in cleaning mode	X

Table 5.1 *- LED status signals of the GAT NET.Lock 7020 - applicable for all modes*

5.5.2 Personal Locker Mode

LED Signal (each field = 0.5 second)								Status	Configurable
1	2	3	4	5	6	7	8		
								Door is open, lock is unlocked, no data carrier assigned	
								Door is open, lock is unlocked, min. 1. data carrier assigned	X
								Door is closed, lock is locked, min. 1. data carrier assigned	
								Door is closed, lock is locked, no data carrier assigned	X

Table 5.2 *- LED status signals of the GAT NET.Lock 7020 - personal locker mode*

5.5.3 Dynamic Personal Locker Mode

LED Signal (each field = 0.5 second)								Status	Configurable
1	2	3	4	5	6	7	8		
								Free - no data carrier assigned	X*
								In use - data carrier assigned	X*

*Show inactive locker in advanced configuration

Table 5.3 *- LED status signals of the GAT NET.Lock 7020 – dynamic personal locker mode*

5.5.4 GAT Lock 5000 Mode

To operate in this mode, the GAT NET.Lock 7020 must be configured accordingly.

LED Signal (each field = 0.5 second)								Status	Configurable
1	2	3	4	5	6	7	8		
								Door is open, lock is unlocked	
■	■	■	■	■	■	■	■	Door is closed and locked	
■	■		■	■		■	■	Door is closed, ready to lock	
■		■		■		■		Door is locked, data carrier not valid	

Table 5.4 *- LED status signals of the GAT NET.Lock 7020 - GAT Lock 5000 mode*

5.6 Locker Operation for Visitors

5.6.1 Lock a Locker

In order to use an unoccupied locker, i.e., to lock a locker, the door must be pressed shut so that the door shackle inserts into the GAT NET.Lock 7020 and the LED begins to flash. While the door is pressed shut, the user holds their data carrier next to the reading field on the locker door. The GAT NET.Lock 7020 reads the data carrier and sends the information on to the sub/main controllers and locker management software for evaluation. If the data carrier, i.e., the user, is allowed to use the locker, a command is sent instructing the GAT NET.Lock 7020 to lock the locker.

A door contact at the front of the GAT NET.Lock 7020 lock detects whether the locker door is closed or not. This feature allows the locker state to be detected and displayed on a PC via locker system software.

5.6.2 Unlock and Open a Locker

When a user wants to open a locker, they must identify themselves at the lock using their RFID data carrier. When the user holds their data carrier in front of the RFID scan field, the GAT NET.Lock 7020 reads the data carrier, communicates with the sub and main controllers, and if the data carrier (i.e., the user) is allowed to open the locker, a command is sent instructing the GAT NET.Lock 7020 to unlock the locker.

5.6.3 USB Ports

For the GAT NET.Lock 7020 USB (P), two type-A USB ports are provided on the side of the lock to allow the user to charge devices, such as smartphones or tablets, inside the locker.

The USB ports only supply power and the port pin responsible for data transmission is not connected. Therefore, the user must not be concerned that data on their mobile device being charged can be read or copied.

NOTE!

- Adhere to the max. permitted loading current, as indicated in "7 TECHNICAL DATA".
- Ensure that the USB cable is properly inserted into the USB port.
- Ensure that the USB cable is clear of the locker door upon closing.

5.6.4 LED Lighting

The GAT NET.Lock 7020 USB (P) provides the locker user with the convenience of LED lighting to illuminate the locker interior. The LED lighting switches on automatically for a configurable period when the locker door is opened.

5.7 Configuration and Operation via Relaxx Management Software

This chapter includes a brief overview of the Relaxx management software. Detailed information on Relaxx is available in the Relaxx Operation Manual. The Relaxx Installation Manual is also available for information on the system requirements and installation.

The GAT NET.Lock 7020 system can also operate in standalone mode without locker management software. System management and configuration is performed via the controllers in this instance. Detailed information on standalone mode operation is available in a separate document.

The GC7.2000 M (lite) controller can be integrated into the Relaxx software (from Relaxx version 5.2) to enable the full range of functions. These controllers also offer the option of Embedded Relaxx for small systems, in which a version of the Relaxx software with reduced functionality runs directly in the GC7.2000 M (lite). This option does not require the Relaxx server to be installed. A description of the Embedded Relaxx function is available in a separate manual.

5.7.1 General

Relaxx provides system operators with a platform to configure, control, and visually manage the electronic locker locks as well as the access and information terminals by GANTNER Electronic GmbH. Relaxx is installed on computers that run a Microsoft Windows® operating system. See the Relaxx Installation Manual for information on the supported operating systems.

Relaxx consists of a Windows® service, which operates autonomously in the background ensuring communication to the locker system is maintained, and a user interface that provides operators with a means to control and monitor the lockers and online devices in the system.

The simplest installation involves a single Relaxx client operating with the Relaxx service, both installed on the same PC. A more complex installation involves multiple clients, installed on different PCs within a network, all operating with the Relaxx service. In the latter configuration, users log in to the Relaxx system and database using their assigned username and password.

A database application is required for Relaxx. For this purpose, the SQL Server Express application is included in the Relaxx installation package. In addition, the .NET framework is required and this is also included in the Relaxx installation package.

5.7.2 Relaxx Installation and Initial Start-Up

NOTE! Before installing Relaxx, please read the installation manual, which includes important information about the system requirements, installation process, and setup of the database.

The Relaxx installation package includes an installation wizard that guides the user through the installation of Relaxx. During the initial start-up of Relaxx, the database settings and general software options must be configured. It is also necessary to enter the license and activation codes in order to work with Relaxx. These codes are available by contacting GANTNER Electronic GmbH.

6. CLEANING AND MAINTENANCE

6.1 Target Group

This chapter contains information for the cleaning personnel and service technicians responsible for the cleaning and maintenance of the GAT NET.Lock 7020 locker locks and the GAT NET.Controller S 7020, GAT NET.Controller M 7020, and GC7.2000 M (lite) controllers.

ATTENTION! The instructions described in this chapter may only be carried out by suitably trained personnel. The warnings in this chapter must be observed and followed during functional testing, cleaning, and maintenance.

6.2 Cleaning

Regular cleaning of the locker components ensures that the locker system remains in good condition and the correct working order is maintained.

NOTE! Do not use cleaning benzene, diluents, or other abrasive detergents. In addition, the components must not be cleaned using a high-pressure or steam cleaner otherwise they can become damaged!

Complete the following steps to clean the locker:

► Wipe off dirt and dust using a dry, soft, lint-free cloth.

► For extreme dirt, clean the locker components using a slightly moistened cloth. Do not allow moisture to enter the inner parts of the lock or the controller.

6.3 Maintenance

The GAT NET.Lock system components are maintenance-free, i.e., maintenance of the mechanical parts is not required. Should a malfunction be detected during functional testing that cannot be remedied, the corresponding faulty part(s) must be replaced.

The control software Relaxx has a "maintenance” function that is used to periodically clean the database and export older log files.

► Configure the maintenance function in Relaxx via the "Scheduler" page.

By default, log files older than 30 days are exported weekly on Monday at 2:00 am.

6.4 Functional Testing

To ensure that the locker locks are functioning correctly, periodically test the functionality of the locker doors and lock components.

Frequency

- After every 1000 locking operations, or,
- If the locking function of a locker door is impaired.

Instructions

► Press the locker door shut.

- The door shackle must enter the corresponding opening in the lock centrally without touching the opening. The door must close shut without increased effort. Readjust the door (see below) if these conditions are not met.
- The GAT Lock Bolt Set must touch the front of the door lock when the door is pressed shut. Readjust the door (see below) if it does not.

► While pressing the locker door shut, hold an authorized data carrier near the reading field on the door.

- The locker door must lock. If it does not, check that the data carrier authorization is valid and also check that the cabling / communication between the lock, controller, and control software (e.g., Relaxx) on the server is functioning.

► While the locker door is locked, press the door in slightly with the fingers several times.

- The door must be able to be pressed in slightly, one or two millimeters, and then return by itself. If the door gets jammed or is stiff, it must be readjusted (see below).

► While the locker door is locked, firmly push the door with the palm of the hand (do not damage the door).

- The alarm must not be triggered.

► Hold an authorized data carrier a distance of approximately 1 cm in front of the locker door.

- The locker door must unlock and spring open independently. If the door does not spring open by itself, the door must be readjusted (see below). If the data carrier is not read at this distance, the RFID reading range is possibly too small and may benefit from being calibrated using Relaxx software (see the Relaxx Operation Manual).

Adjusting the locker door and door bolt

If a problem, as described previously in “Instructions”, occurs while opening or closing the locker door during functional testing:

► Adjust the position of the GAT NET.Lock Bolt Set or the door shackle according to the measurements in chapter "3 INSTALLATION" (depending on the locker material used). If the door shackle is loose and does not remain in the adjusted position or cannot be adjusted sufficiently, the GAT NET.Lock Bolt Set must be replaced.

► Adjust the position of the locker door according to the measurements in chapter "3 INSTALLATION". If the door cannot be adjusted sufficiently, install it in a different position. If the door is damaged, replace the door with a new door.

6.5 Disposal

- Do not dispose of the GAT NET.Lock 7020 or any of the associated components with the normal household waste, but rather at your local electronic waste recycling facility in accordance with European Directive 2002/96/EC.
- Recycle defective or used batteries according to European Directive 2006/66/EC.
- Observe local regulations for the separate disposal of batteries.
- Recycle packaging in an environmentally friendly manner.

7. TECHNICAL DATA

7.1 GAT NET.Lock 7020

Nominal voltage	
- GAT NET.Lock 7020 (P):	DC 5 V
- GAT NET.Lock 7020 USB (P):	DC 24 V
Power supply:	Via connection cable from sub controller
Average power consumption	
- GAT NET.Lock 7020 (P):	60 mW
- GAT NET.Lock 7020 USB (P):	65 mW (without USB charging, without LED)
Charging current	
(GAT NET.Lock 7020 USB (P))	Up to 2 A per lock and max. 70 W per controller* * When multiple devices are being charged simultaneously at multiple locks of a sub controller, the charging current of the sub controller is automatically distributed between these locks.
Max. transmission power:	<400 mW
RFID frequency	
- GAT NET.Lock 7020 (USB):	13.56 MHz
- GAT NET.Lock 7020 (USB) P:	13.56 MHz + 125 kHz
Break-in resistance capability:	DIN 4547-2 class C
Signaling element:	Multi-color status LED
Interface to sub controller:	One-wire (special cable for supply, data, and RF signal)
Connectors:	MOLEX, type Micro-Fit 3.0™
Housing material:	Plastic (PC)
Door width:	Min. 230 mm (9.05 in)
Dimensions	
- GAT NET.Lock 7020 (P):	110 x 100 x 25 mm (4.33 x 3.94 x 0.98 in)
- GAT NET.Lock 7020 USB (P):	110 x 100 x 37 mm (4.33 x 3.94 x 1.46 in)
Weight:	Approx. 160 g (5.6 oz)
Permitted ambient temperature:	0 °C to +60 °C (32 °F to 140 °F)
Protection type:	IP 52
Protection class:	III
Environment class based on VdS 2110:	II (conditions in indoor areas)
Compliance:	CE, FCC, IC, ETL

7.2 GAT NET.Controller S 7020 (Light)

Nominal voltage:	DC 24 V
Power supply unit	External power supply
- GAT NET.Lock 7020 (P):	GAT NET.Power Supply 7020 100-240V / VI
- GAT NET.Lock 7020 USB (P):	GAT NET.Power Supply 7020 USB 100-240V / VI
Power consumption	
- With GAT NET.Lock 7020 (P) locks:	Typ. 3 W (with 24 GAT NET.Lock 7020 locks connected)
- With GAT NET.Lock 7020 USB (P) locks:	Up to 90 W in USB charging mode
Reader types	
- GAT NET.Controller S 7020 F/ISO:	MIFARE® + ISO 15693
- GAT NET.Controller S 7020 F/ISO Light:	MIFARE® + ISO 15693
- GAT NET.Controller S 7020 B:	LEGIC advant
- GAT NET.Controller S 7020 ICLS:	HID iCLASS®
Max. locks per sub controller:	
- GAT NET.Controller S 7020 F/ISO / B / ICLS:	24
- GAT NET.Controller S 7020 F/ISO Light:	12
Connectors	
- Sub to main (RS-485):	RJ45
- Locks:	MOLEX, type Micro-Fit 3.0™
- Power:	6-pin MOLEX
Interface to main controller:	RS-485
Housing material:	Plastic (ABS - VO)
Dimensions:	310 x 133 x 42 mm (12.2 x 5.24 x 1.65 in)
Weight:	Approx. 600 g (21.2 oz)
Permitted ambient temperature:	0 °C to +60 °C (32 °F to 140 °F)
Protection type:	IP 40
Protection class:	I
Environment class based on VdS 2110:	II (conditions in indoor areas)
Compliance:	CE, FCC, IC, ETL

7.3 GAT NET.Controller M 7020 (Light)

Nominal voltage:	DC 24 V
Power supply unit:	External power supply (GAT NET.Power Supply 7020 100-240V / VI)
Power consumption:	Approx. 3 W
Memory:	Internal memory for 10,000 bookings. SD card slot for memory expansion, log files, firmware update, or user lists.
Interface to server:	Ethernet
GAT Lock Network	
- GAT NET.Controller M 7020:	Max. 8 GAT NET.Controller S 7020 sub controllers
- GAT NET.Controller M 7020 Light:	Max. 3 GAT NET.Controller S 7020 sub controllers
Connectors	
- Main to server (Ethernet):	RJ45
- Sub to main (RS-485):	RJ45
- Power:	6-pin MOLEX
Digital inputs	
- GAT NET.Controller M 7020:	- 4 x optocouplers (function configurable) - Input voltage: DC 6 to 30 V - Input current: 4.5 mA
- GAT NET.Controller M 7020 Light:	No inputs
Digital outputs	
- GAT NET.Controller M 7020:	- 4 x relays (NO/NC, function configurable) - Switching voltage: max. 30 VAC/DC - Limiting continuous current: max. 2 A - Switching power: max. 60 VA
- GAT NET.Controller M 7020 Light:	No outputs
Housing material:	Plastic (ABS - VO)
Dimensions:	310 x 133 x 42 mm (12.2 x 5.24 x 1.65 in)
Weight:	Approx. 600 g (21.2 oz)
Permitted ambient temperature:	0 °C to +60 °C (32 °F to 140 °F)
Protection type:	IP 40
Protection class:	I
Environment class based on VdS 2110:	II (conditions in indoor areas)
Compliance:	CE, FCC, IC, ETL

7.4 GC7.2000 M (lite)

Nominal voltage:	DC 24 V
Power supply unit:	External power supply (GAT NET.Power Supply 7020 100-240V / VI)
Power consumption:	Approx. 4 W
Memory:	Internal SD memory for bookings, log files, firmware, updates, or user lists.
Interface to server:	Ethernet
GAT Lock Network	
- GC7.2000 M:	Max. 8 GAT NET.Controller S 7020 sub controllers
- GC7.2000 M lite:	Max. 3 GAT NET.Controller S 7020 sub controllers
Connectors	
- Main to server (Ethernet):	RJ45
- Sub to main (RS-485):	RJ45
- Power:	6-pin MOLEX (same connector as the GAT NET.Controller M 7020)
Digital inputs	
GC7.2000 M (lite):	- 2 x optocouplers (function configurable) - Input voltage: DC 6 to 30 V - Input current: 4.5 mA
Digital outputs	
GC7.2000 M (lite):	- 2 x relays (NO/NC, function configurable) - Switching voltage: max. 30 VAC/DC - Limiting continuous current: max. 2 A - Switching power: max. 60 VA
Housing material:	Plastic (ABS - VO)
Dimensions:	310 x 133 x 42 mm (12.2 x 5.24 x 1.65 in)
Weight:	Approx. 600 g (21.2 oz)
Permitted ambient temperature:	-10 °C bis +50 °C (14 °F to 122 °F)
Protection type:	IP 40
Protection class:	I
Environment class based on VdS 2110:	II (conditions in indoor areas)
Compliance:	CE, FCC, IC

Note:
This manual is valid from 14th August 2020. It is subject to change.
Amendments and changes can be made without prior notice at any time.

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