Gantner

GAT SMART.Lock 7000 System

Centrally Operated Electronic Locking System

Installation, Configuration, Operation
Document Version 1.5

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 in particular 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.

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Contact

The contact information for questions regarding the GAT SMART.Lock 7000 System 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.

The GAT SMART.Lock 7000 System was developed and fabricated under the quality management standard ISO 9001 and GANTNER Electronic GmbH is also certified according to standard ISO 14001.

This product is in conformity with the following EC directives, including all applicable amendments:
- 2014/53/EU (Radio Equipment Directive)
- 2011/65/EU (Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment)

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.

FCC INFORMATION (U.S.A.)

Note:

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

FCC Warning Statement:

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

Compliance Statement

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.

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1 INTRODUCTION

1.1 About this Manual

This manual contains all the information required to install the GAT SMART.Lock 70x1 electronic locker locks into lockers / depots. The operation procedure for the end user is also described.

In order to use the GAT SMART.Lock 70x1 locks, the GAT SMART.Controller S 7020 sub controller, a GAT NET.Controller M 7020 main controller or a central reader, and possibly PC software for configuring and controlling the locker system are required. These additional system components are also described in this manual. Further detailed information on the additional hardware is available in separate documentation.

1.2 Chapter Overview

In chapter, “2 GENERAL INFORMATION”, a functional description and overview of the GAT SMART.Lock 70x1 system components and a description of the main terms used in this manual can be found.

Chapter “3 INSTALLATION” contains the measurement diagrams and information required to install the GAT SMART.Lock 70x1 lock into lockers.

Chapter “4 ELECTRICAL CONNECTIONS” describes how to complete the electrical connection of the locker locks, the controllers, and the GT7 Central Locker. Important information regarding the power supply and network connection between the controllers and the server can also be found in this chapter.

See chapter “5 CONFIGURATION” for an overview of how to configure and commission the GAT SMART.Lock 70x1 system (i.e., the controllers and the GT7 Central Locker) using configuration software. You will find a more detailed description in the manual of the respective configuration software.

Refer to chapter “6 OPERATION” for instructions on how to lock and unlock a GAT SMART.Lock 70x1 equipped locker in various operating modes.

Chapter “7 TECHNICAL DATA” contains the technical data of the GAT SMART.Lock 70x1 system components.

1.3 Target Group

This manual contains information relevant for the different stages in the operating life of the GAT SMART.Lock 70x1. Information on the installation, commissioning, and service/maintenance of the GAT SMART.Lock 70x1 is separated into corresponding chapters. When a chapter is intended for a specific audience, this is clarified at the beginning of the chapter.

Information for the following target groups is available in this manual:

- Installation technicians (installation, operation, configuration).
- Service technicians and cleaning personnel (service and maintenance).
- End users of the GAT SMART.Lock 70x1 (user manual).

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.

1.4 Formatting

1.4.1 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 to the device or associated equipment.

1.4.2 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 section. It will help you to better understand the information in the section or provide interesting tips for the described device or software operation.

1.4.3 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.

1.5 Contact & Enquiries

If you have any questions concerning the GAT SMART.Lock 70x1, please contact your local sales partner or directly with one of the GANTNER branch offices. The contact details of the branch offices are provided on the cover of this manual.

2 GENERAL INFORMATION

2.1 Intended Use

The GAT SMART.Lock 70x1 electronic lock is the ideal solution for the convenient locking of various types of lockers in different areas of commerce including industry, logistics, companies, and educational facilities.

2.2 Functional Description

The GAT SMART.Lock 70x1 is suitable for any type of material (sheet metal, wood, HPL, solid plastic, and glass) and can be used for left and right-hinged doors alike. Due to its slim design, the GAT SMART.Lock 70x1 can also be installed in the intermediate wall of the locker body.

The GAT SMART.Lock 70x1 can be installed either on the inner side of the locker or in the locker partition wall. The door shackle, which is used to lock the door, is mounted on the door.

The GAT SMART.Lock 70x1 is controlled by the GAT SMART.Controller S 7020 sub controller. Up to 24 GAT SMART.Lock 70x1 locks can be connected to one sub controller. The sub controllers are connected to a central reader or to PC software via a main controller. To open a locker, the user must first read their data carrier at a central reader. After valid identification and authorization, the central reader or the PC software sends a signal to the sub controller that commands the corresponding lock to unlock the locker for the user.

2.3 Terminology

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

Locker
The term locker in this manual refers to a wardrobe locker, deposit locker, or similar, which is locked by a GAT SMART.Lock 70x1.

Lock
General term for the GAT SMART.Lock 70x1.

Sub Controller
Connected to a GAT SMART.Controller S 7020 sub controller are the GAT SMART.Lock 70x1 (up to 24 locks per sub controller). The sub controllers receive control signals via the serial RS-485 network that control the electronic locks.

Main Controller
A GAT NET.Controller M 7020 main controller can be used to connect a sub controller via Ethernet to a higher-ranking PC/server with management software.

Central reader
An electronic device (GT7 Central Locker) where users can identify themselves with their RFID data carriers in order to unlock their lockers. The central reader sends a command to the sub controller for the corresponding locker to be unlocked.

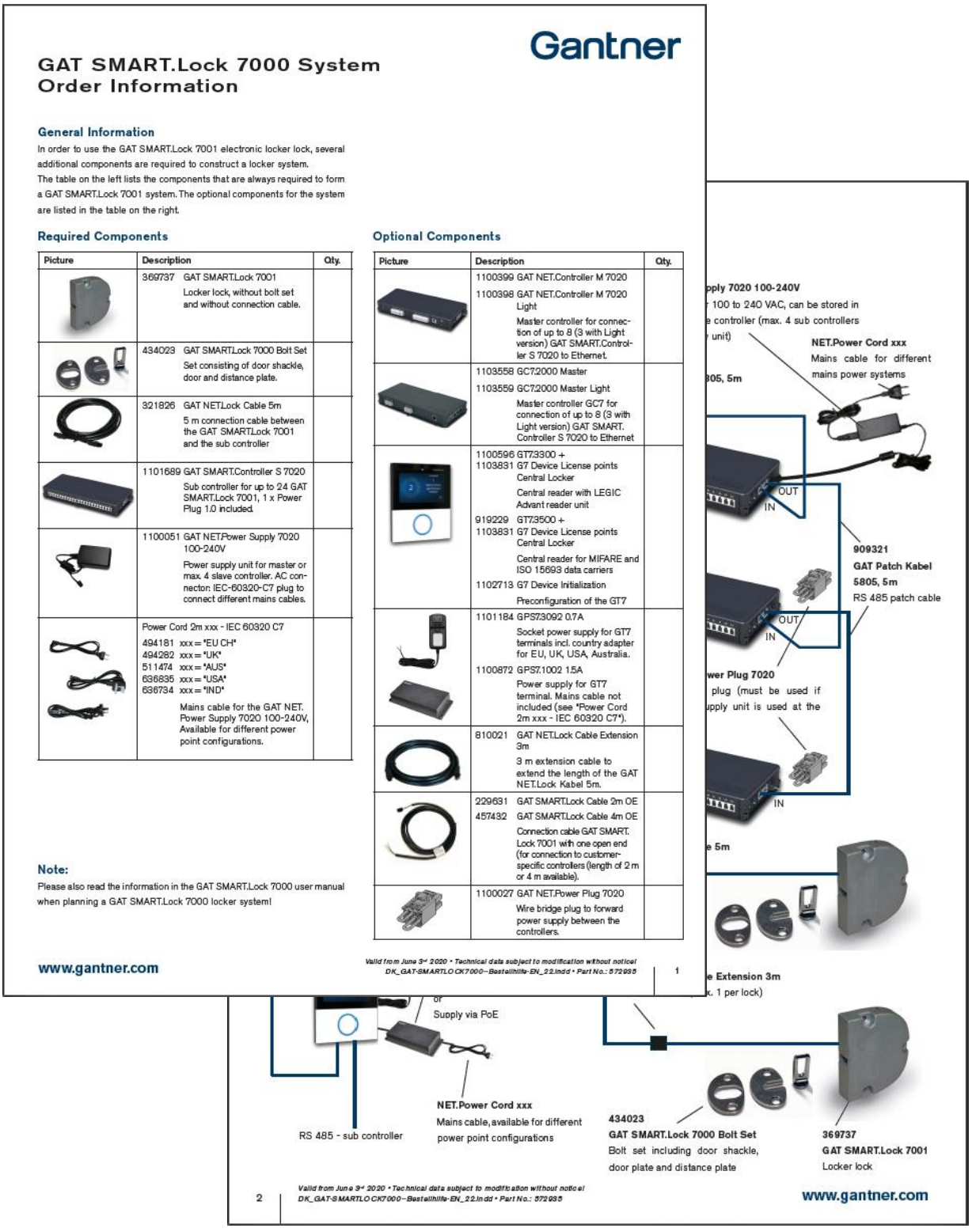
PC software
A software application, e.g., Relaxx, which is installed on a PC or server and used to configure and control the locker system.

User
The term user refers to the person who wants to use a locker that is equipped with a GAT SMART.Lock 70x1.

Data carrier
Data carriers can be used by users for identification in order to unlock their lockers. This can be done, for example, at a central reader. Contactless RFID (Radio Frequency Identification) chips are used in data carriers. The data carriers are available in different designs such as cards in ISO standard size, key tags, wristbands, and also for different identification systems (LEGIC, MIFARE® or ISO 15693).

2.4 Ordering Guide

For the planning and ordering of the GAT SMART.Lock system components, an ordering guide is available as a separate document.



Gantner

GAT SMART.Lock 7000 System
Order Information

General Information

In order to use the GAT SMART.Lock 7001 electronic locker lock, several additional components are required to construct a locker system.
The table on the left lists the components that are always required to form a GAT SMART.Lock 7001 system. The optional components for the system are listed in the table on the right.

Required Components

Picture	Description	Qty.
	369737 GAT SMART.Lock 7001 Locker lock, without bolt set and without connection cable.	
	434023 GAT SMART.Lock 7000 Bolt Set Set consisting of door shackle, door and distance plate.	
	321826 GAT NET.Lock Cable 5m 5 m connection cable between the GAT SMART.Lock 7001 and the sub controller	
	1101689 GAT SMART.Controller S 7020 Sub controller for up to 24 GAT SMART.Lock 7001, 1 x Power Plug 1.0 included.	
	1100051 GAT NET.Power Supply 7020 100-240V Power supply unit for master or max. 4 slave controller. AC connecton: IEC-60320-C7 plug to connect different mains cables.	
	Power Cord 2m xxx - IEC 60320 C7 494181 xxx = *EU CH* 494282 xxx = *UK* 511474 xxx = *AUS* 636835 xxx = *USA* 636734 xxx = *IND* Mains cable for the GAT NET. Power Supply 7020 100-240V, Available for different power point configurations.	

Optional Components

Picture	Description	Qty.
	1100399 GAT NET.Controller M 7020 1100398 GAT NET.Controller M 7020 Light Master controller for connection of up to 8 (3 with Light version) GAT SMART.Controller S 7020 to Ethernet.	
	1103558 GC7.2000 Master 1103559 GC7.2000 Master Light Master controller GC7 for connection of up to 8 (3 with Light version) GAT SMART. Controller S 7020 to Ethernet	
	1100596 GT7.3300 + 1103831 G7 Device License points Central Locker Central reader with LEGIC Advant reader unit 919229 GT7.3500 + 1103831 G7 Device License points Central Locker Central reader for MIFARE and ISO 15693 data carriers 1102713 G7 Device Initialization Preconfiguration of the GT7	
	1101184 GPS7.3092 0.7A Socket power supply for GT7 terminals incl. country adapter for EU, UK, USA, Australia. 1100872 GPS7.1002 1.5A Power supply for GT7 terminal. Mains cable not included (see *Power Cord 2m xxx - IEC 60320 C7*).	
	810021 GAT NET.Lock Cable Extension 3m 3 m extension cable to extend the length of the GAT NET.Lock Kabel 5m.	
	229631 GAT SMART.Lock Cable 2m OE 457432 GAT SMART.Lock Cable 4m OE Connection cable GAT SMART. Lock 7001 with one open end (for connection to customer-specific controllers (length of 2 m or 4 m available).	
	1100027 GAT NET.Power Plug 7020 Wire bridge plug to forward power supply between the controllers.	

Note:
Please also read the information in the GAT SMART.Lock 7000 user manual when planning a GAT SMART.Lock 7000 locker system!

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1

pply 7020 100-240V
100 to 240 VAC, can be stored in
controller (max. 4 sub controllers
unit)
NET.Power Cord xxx
Mains cable for different mains power systems
305, 5m
OUT
IN
909321
GAT Patch Kabel
5805, 5m
RS 485 patch cable
wer Plug 7020
plug (must be used if
upply unit is used at the
e 5m
e Extension 3m
k. 1 per lock)
or
Supply via PoE
NET.Power Cord xxx
Mains cable, available for different power point configurations
RS 485 - sub controller
434023
GAT SMART.Lock 7000 Bolt Set
Bolt set including door shackle, door plate and distance plate
369737
GAT SMART.Lock 7001
Locker lock
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2

2.5 System Components

The GAT SMART.Lock 7000 system consists of the following system components:

1. GAT SMART.Lock 70x1

2. GAT SMART.Lock 7001 Bolt Set

3. GT7 Central Locker (Central Reader)

5. GAT NET.Controller M 7020 (Main controller)

4. GAT SMART.Controller S 7020 (Sub controller)

7. GC7.2000 M (lite)

6. GAT NET.Controller M 7020 Light (Main controller)

8. GAT NET.Power Supply 7020 100-240V / VI (Power supply)

9. GAT NET.Power Cord xxx (Different power cables for the power supply)

10. GAT NET.Lock Cable 5m (Connection cable, length 5 m)

12. GAT SMART.Lock Cable 2m OE und …5m OE (2 m/5 m connection cable with one unterminated end)

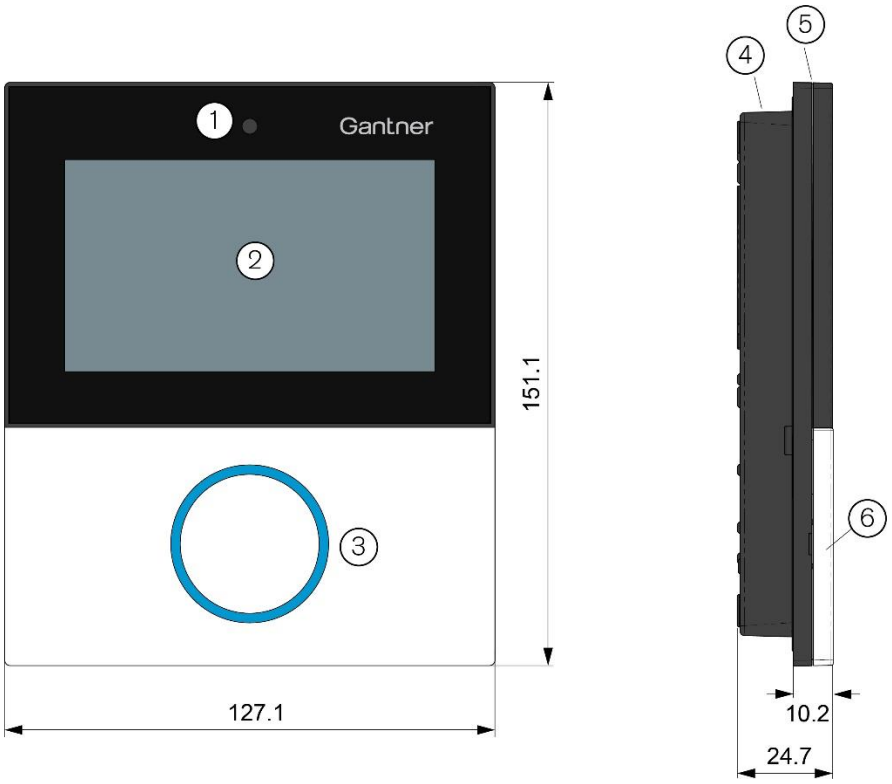
11. GAT NET.Lock Cable Extension 3m

13. Ethernet Patch Cable

Figure 2.1 *- Components of the GAT SMART.Lock 7000 locking system*

1. GAT SMART.Lock 70x1
   Electronic locker lock with integrated door open status, without bolt set, without door label. The following lock types are available:
   - GAT SMART.Lock 7001 (Part No. 369737)
   - GAT SMART.Lock 7011 (Part No. 1106919) - with mechanical emergency opening.
2. GAT SMART.Lock 7001 Bolt Set (Part No. 1100400)
   Bolt set consisting of a door shackle, door plate, and distance plate. The bolt set is installed on the locker door.
3. GT7.3300 (Part No. 1100596) + G7 Device License points Central Locker (Part No. 1103831)
   GT7.3500 (Part No. 919229) + G7 Device License points Central Locker (Part No. 1103831)
   Central reader for autonomous authorization checks and controlling the GAT SMART.Lock 70x1 via the sub controller. The GT7.3300 includes a LEGIC advant reader, the GT7.3500 includes a reader for ISO 14443 (MIFARE) and ISO 15693 data carriers.
   With the article G7 Device Initialization (Part No. 1102713), the GT7 device can be pre-configured for the Central Locker function.
4. GAT SMART.Controller S 7020 (Part No. 1101689)
   The sub controller is a control unit for the connection of up to 24 GAT SMART.Lock 70x1.
5. GAT NET.Controller M 7020 (Part No. 1100399)
   The main controller is used to connect max. 8 sub controllers to a server/PC.
6. GAT NET.Controller M 7020 Light (Part No. 1100398)
   Light version of main controller. Used to connect max. 3 sub controllers to a server/PC.
7. GC7.2000 M (Part No. 1103558)
   GC7.2000 M lite (Part No. 1103559)
   The main controller is used to connect max. 8 sub controllers GAT SMART.Controller S 7020 (resp. 3 sub controllers with the “lite” version) to a PC/server.
8. GAT NET.Power Supply 7020 100-240V/VI (Part No. 1100051)
   Power supply for the sub and main controllers.
9. Power Cord 2m xxx – IEC 60320 C7
   2 m power cord for the GAT NET.Power Supply 7020 100-240 V/VI, suitable for different power outlet configurations:
   - Power Cord 2m EU CH – IEC 60320 C7 (Part No. 494181). For European 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.
10. GAT NET.Lock Cable 5m (Part No. 734430)
    4-pin connection cable (5 m) to connect a GAT SMART.Lock 70x1 to a GAT SMART.Controller S 7020 sub controller. 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 SMART.Lock Cable xm OE
    4-pin connection cable (2 or 5 m) to connect a GAT SMART.Lock 70x1 to a GAT SMART.Controller S 7020 sub controller. With one unterminated end for connecting to a customer-specific controller.
    - GAT SMART.Lock Cable 2m OE (Part No. 229631). 2 m connection cable.
    - GAT SMART.Lock Cable 5m OE (Part No. 864228). 5 m connection cable.
13. Ethernet Patch Cable (Part No. 909321)
    Standard network cable (min. CAT. 5) to connect the sub controller to the main controller.

2.6 Central Reader GT7 Central Locker



1 Camera (optional accessory)
2 Display (touchscreen)
3 RFID reader with status LED
4 Rear part
5 Front part
6 RFID reader cover

***Figure 2.2** – Central reader GT7 Central Locker*

The GT7 Central Locker has a reader for RFID data carriers (Radio Frequency Identification) and thus enables users to identify themselves with their personal data carriers at the RFID reader. Further operation such as the selection and confirmation of functions is carried out directly on the device by touching the display.

The reader cover and front part can be removed from the rear part for installation and completing the electrical connections, etc. Different mounting options are available for the GT7 Central Locker reader.

Please read the GT7 Central Locker manual for more information about this terminal.

3 INSTALLATION

This chapter describes the process required to install the GAT SMART.Lock 70x1 and what to consider during installation.

NOTICE

Risk of failure or damage to the GAT SMART.Lock 70x1

- *These installation instructions describe how to install the GAT SMART.Lock 70x1 locker locks. Please read this manual carefully before you start working on the lockers or installing the locks.*
- *Before all lockers for the installation are produced and the locks installed, it is essential to read and observe the instructions in chapter "3.2 Points to Observe During Installation".*
- *As there are many different applications and locker types, a trial installation including functional testing (see chapter "3.3 Test Installation") must always be carried out before the serial production of lockers and the installation of locks begins.*

3.1 Target Group

The installation may only be carried out by qualified personnel. Experience in mechanical work and basic electrical knowledge is required. Previous knowledge of the GAT SMART.Lock 70x1 or GANTNER access systems is not required.

3.2 Points to Observe During Installation

Mounting Screws
The GAT SMART.Lock 70x1 attaches to the locker wall using three screws. Use the correct type of screws depending on the type of locker material. The mounting screws must not be over tightened; the maximum permitted tightening torque is 2.2 Nm.

Mounting of the door bolt set
Use the correct type of screws depending on the type of locker material for attaching the door shackle, door plate, and distance plate to the door. The door bolt must withstand at least 2000 N tensile force. The positioning and assembly of the door bolt set must be done on a fully assembled locker including all locker parts such as hinges, dampers, etc.

No retaining devices
No retaining devices such as springs should be used on the doors as this can prevent the door from springing open correctly.

Mounting security bolt
The mounting security bolt may only be removed once the GAT SMART.Lock 70x1 is installed and the electrical connections (see "4 ELECTRICAL CONNECTIONS") are completed.

3.3 Test Installation

As the GAT SMART.Lock 70x1 is suitable for a wide range of installation applications, always perform a test installation including functional testing of the GAT SMART.Lock 70x1 in a sample locker from the facility before starting with the mass production of lockers.

Ensure the following important points are met:
- The door shackle slides centrally into the opening of the GAT SMART.Lock 70x1.
- The locker door locks without any problems.
- The locker door opens without resistance (ensure retaining elements such as springs are correctly calibrated).

NOTE! When a locker with an installed GAT SMART.Lock 70x1 is closed and the mounting security bolt has already been removed, the GAT SMART.Lock 70x1 can only be unlocked by a corresponding signal emitted by the sub controller (or alternatively through an emergency opening). Before completing the locking test, ensure that the connection cable is completely installed, routed out of the locker body, and connected to the GAT NET.Controller S 7020.

Once the test installation is successfully completed, the remaining locks can be installed in the same way.

3.4 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:

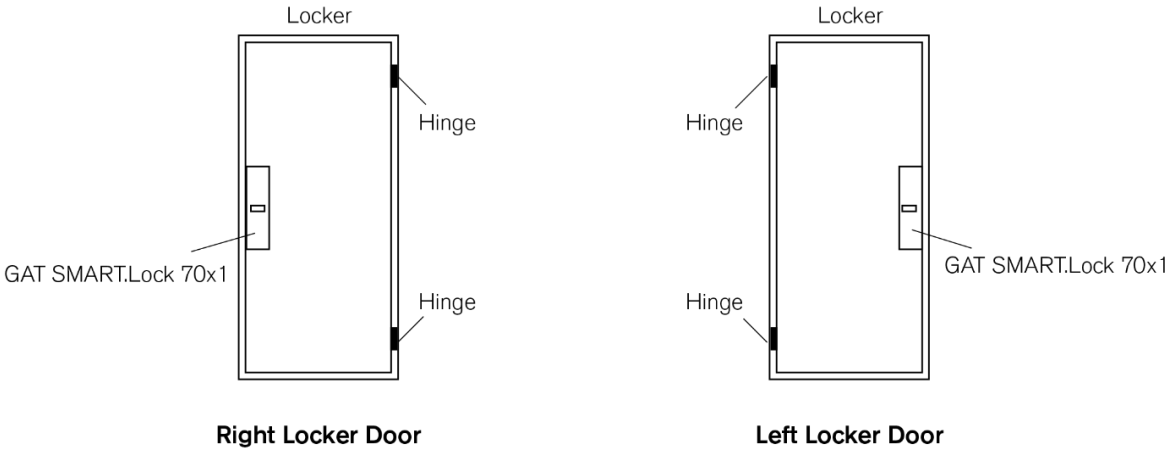


Figure 3.1 *- Definition of the locker door (left/right)*

The installation process for right-hinged doors is described over the following pages. The installation process for left-hinged doors is functionally the same as for right-hinged doors, only with reversed lock and door orientation.

3.5 Replacement after a Break-In Attempt

If a break-in (forced opening) has been attempted on a locker, the entire GAT SMART.Lock 70x1 must be replaced with a new one. The door plate, the distance plate, and the door shackle must be replaced as well.

3.6 Locking Pin

The GAT SMART.Lock 70x1 is secured against unintentional locking prior to normal operation by a locking pin (1). Remove the locking pin for functional testing of the GAT SMART.Lock 70x1 only after the installation and electrical connection (see “4 ELECTRICAL CONNECTIONS”) have been successfully completed. Remove the locking pin by pulling it straight out of the housing.

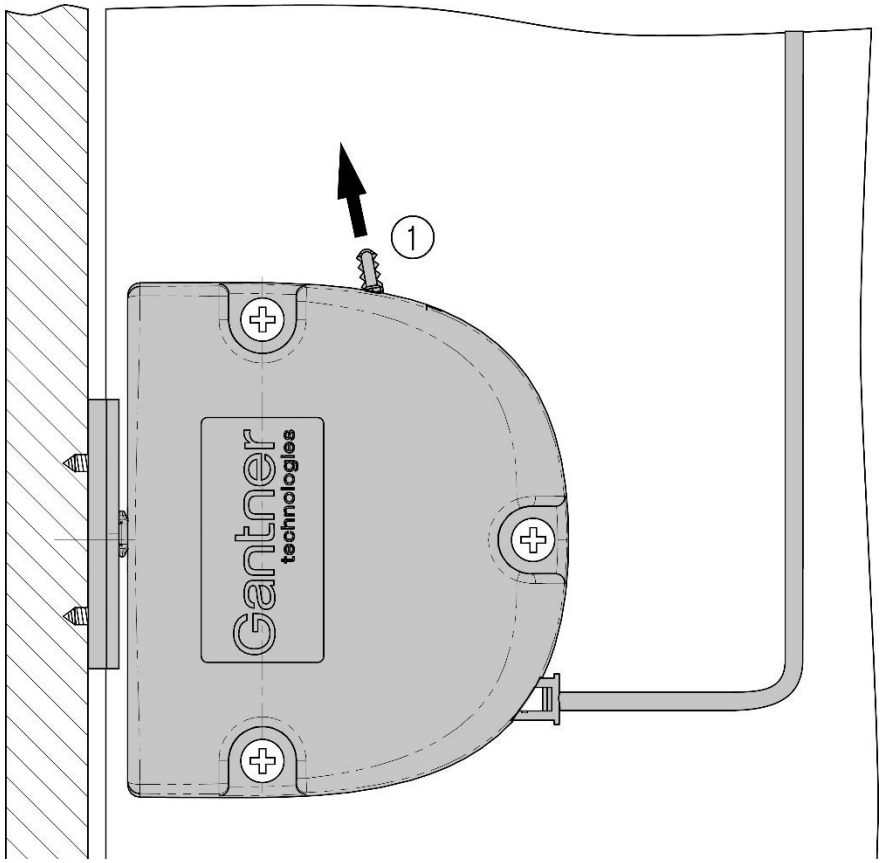


Figure 3.2 *– Locking pin of the GAT SMART.Lock 70x1*

3.7 Manual Emergency Opening (GAT SMART.Lock 7011)

The GAT SMART.Lock 7011 is equipped with an actuator (1) that can be used to open the locker (mechanical override) in an emergency, e.g., if a person locks themselves inside the locker.

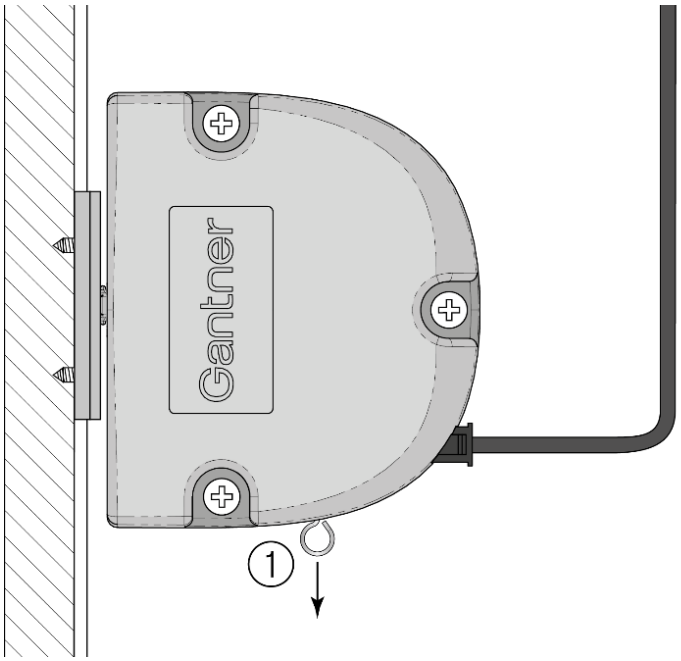
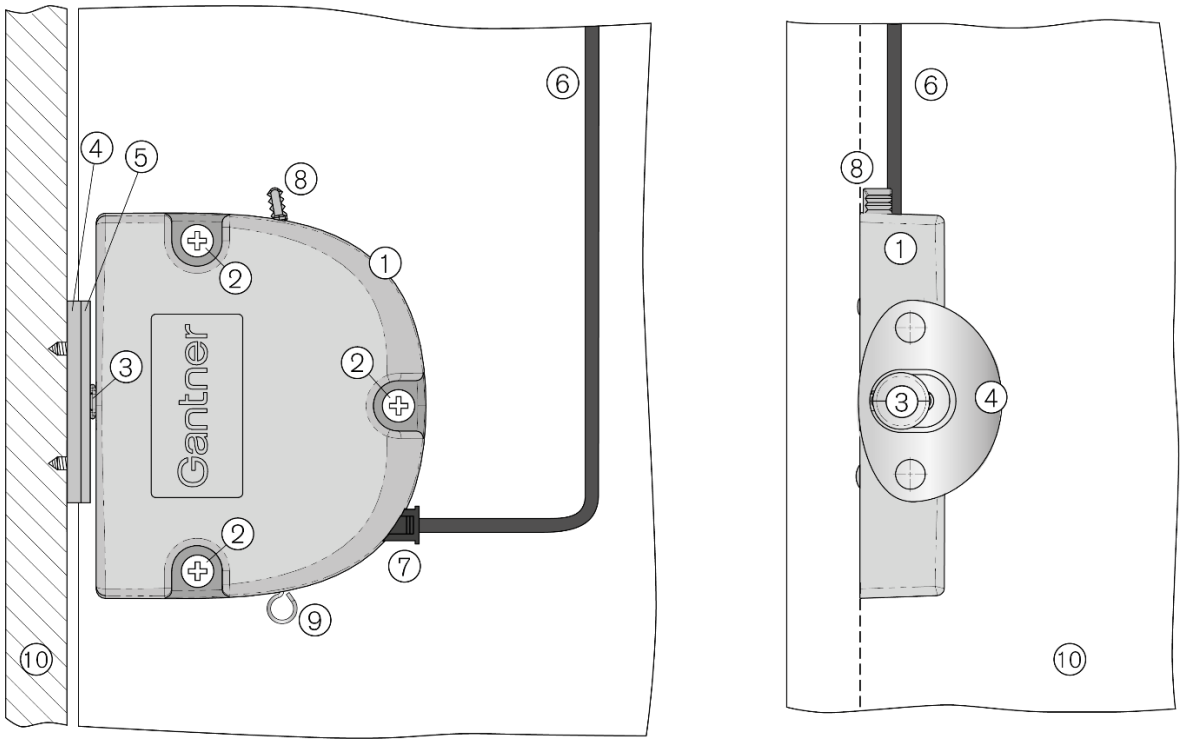


***Figure 3.3** – Actuator for emergency opening of the GAT SMART.Lock 7011*

The opening of the locker in such a situation is possible by pulling the actuator (1) away (up or down depending on the door orientation) from the GAT SMART.Lock 7011 using, e.g., a Bowden cable. As different options are possible for manually operating the actuator, e.g., push button, T-handle, etc., locker manufacturers must decide individually depending upon the requirements how best to integrate the function into their locker systems.

After a manual emergency opening has been carried out, the actuator returns to its original position and operation can continue as before. The sensor that detects whether the locker door is open or closed also functions for the manual emergency opening.

3.8 Installation Overview



1. GAT SMART.Lock 70x1
2. Mounting screws (3x) depending on the locker material
3. Door shackle
4. Door plate
5. Distance plate
6. Connection cable
7. Connection plug
8. Locking pin
9. Emergency opening actuator (GAT SMART.Lock 7011 only)
10. Locker door

Figure 3.4 *- Installation overview GAT SMART.Lock 70x1 for right-hinged doors*

The GAT SMART.Lock 70x1 is installed using 3 round head screws (2). Depending on the type of locker, the lock can be mounted on the locker side wall or in the locker intermediate wall.

On the inner side of the locker door, the door shackle is mounted with the door plate and distance plate.

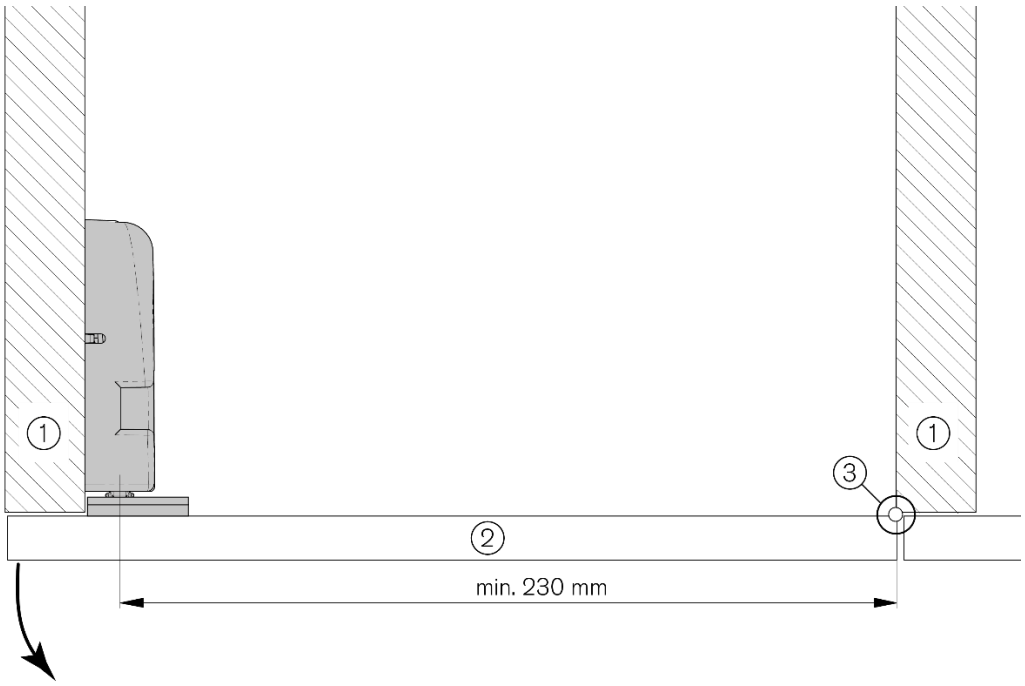
3.9 Measurement Diagrams for Installation

In this section, you will find the dimensions of the components of the GAT SMART.Lock 7000 system (lock, door, shackle, etc.) as well as other important measurements to consider during installation.

NOTE! Please read and observe these instructions carefully before planning and starting installation.

3.9.1 Door Width

The minimum allowed door width (measured from the door shackle to the hinge) is 230 mm (9.05´´). For doors with narrower widths, the door shackle will hit the lock when the door is being closed.



1. Locker wall
2. Locker door
3. Center of hinge rotation

Figure 3.5 *- Minimum door width*

3.9.2 Dimensions of the GAT SMART.Lock 70x1

For the length and diameter of the mounting screws, note the length (9.5 mm) and diameter (5 mm) of the mounting holes (2) indicated below.

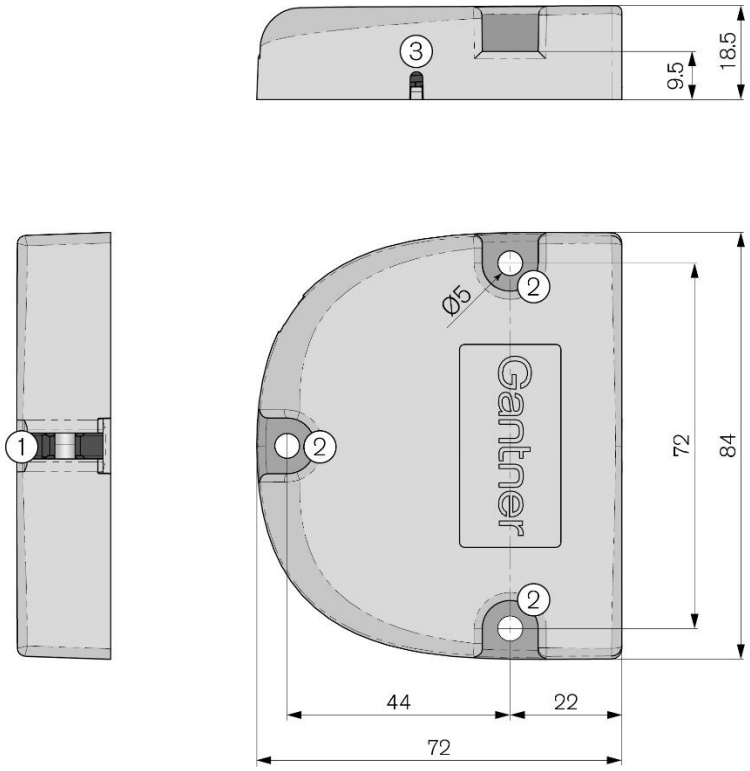


***Figure 3.6** – Dimensions of the GAT SMART.Lock 70x1 (measurements in mm)*

3.9.3 Dimensions of the Door Shackle and Mounting Plates

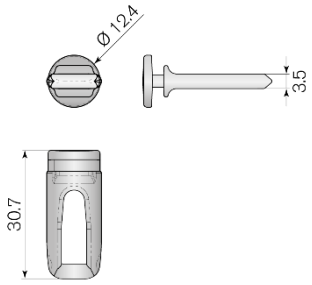


***Figure 3.7** - Door shackle*

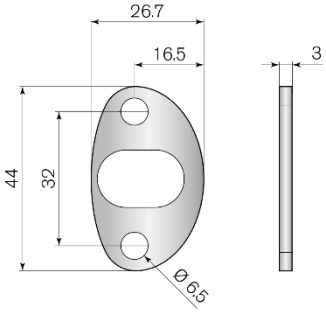


***Figure 3.8** - Door plate*

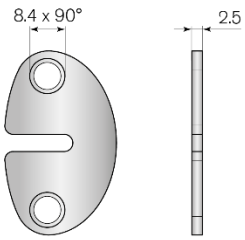


***Figure 3.9** - Distance plate*

3.9.4 Important Measurements for Installation

Observe the following measurements for installation:

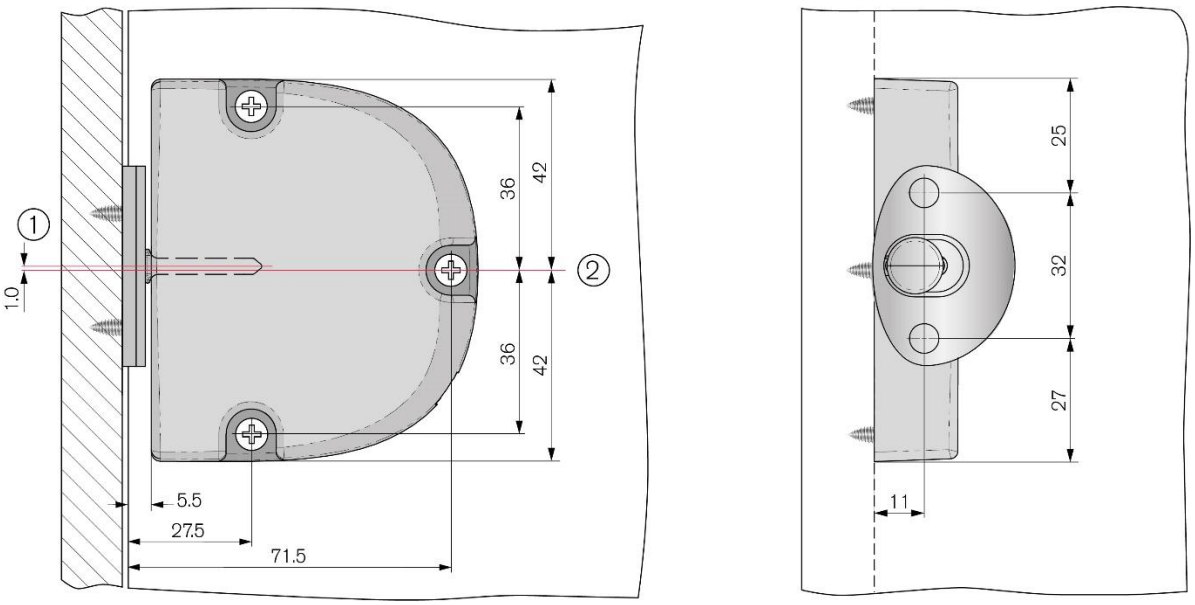


***Figure 3.10** – Important measurements for installation*

- The center of the door shackle (1 in Figure 3.10) must be 1 mm higher than the center of the door shackle opening (2 in Figure 3.10) on the GAT SMART.Lock 70x1. This allows the door to close correctly even when the position of the door adjusts within the tolerance range of max. 3.5 mm downwards or 1.5 mm upwards (tolerance ±2.5 mm).
- The distance between the front surface of the GAT SMART.Lock 70x1 (3 in Figure 3.11) and the distance plate (4 in Figure 3.11) must be 1 mm to max. 1.5 mm when the locker door is closed.
- The distance between the front surface of the locker body (5 in Figure 3.11) and the locker door (6 in Figure 3.11) must be min. 1 mm when the locker door is closed.

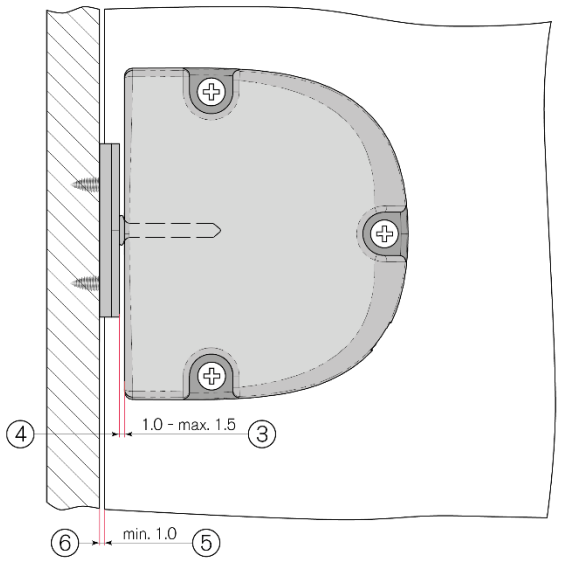


***Figure 3.11** – Detail drawing with closed locker door*

3.10 Mounting the GAT SMART.Lock 70x1 on the Inner Side of the Locker

Observe the following instructions to mount the GAT SMART.Lock 70x1 on the inner side of the locker door.

- ► Drill 3 mounting holes according to the measurements in Figure 3.10.
  NOTE! Position the holes according to the measurements shown in “3.9.4 Important Measurements for Installation”.
- ► Mount the GAT SMART.Lock 70x1 onto the locker wall. Observe the maximum tightening torques.
- ► Install the connection cable and plug it into the GAT SMART.Lock 70x1. The cable must be routed out of the locker so that it can be connected to the GAT SMART.Controller S 7020.

NOTE! For operation, the locking pin must be removed from the GAT SMART.Lock 70x1. Remove the locking pin only after first completing the installation and functional testing (see “3.6 Locking Pin”).

3.11 Mounting the GAT SMART.Lock 70x1 in the Locker Intermediate Wall

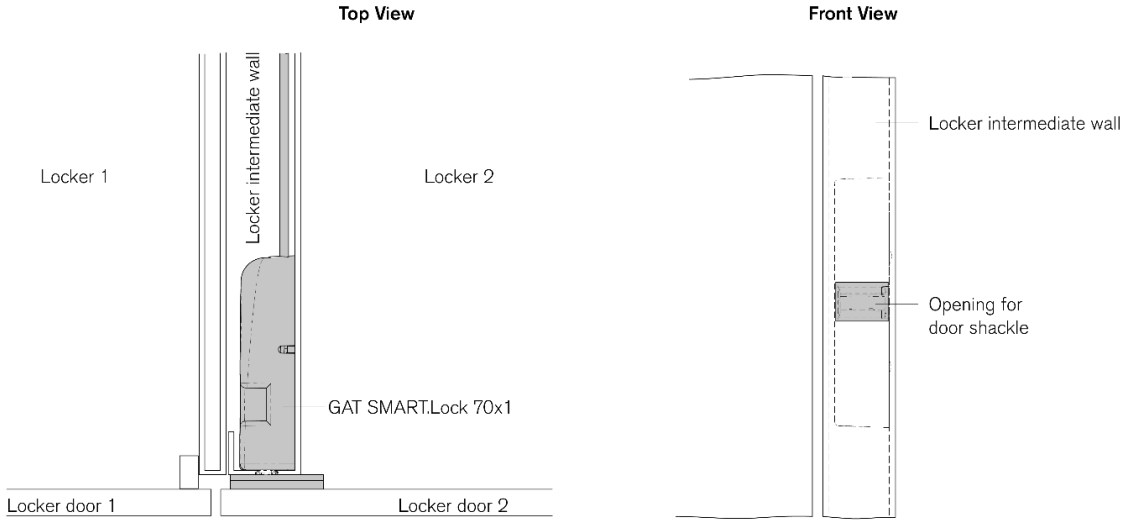


***Figure 3.12** - Installation in the locker intermediate wall*

- ► Drill 3 mounting holes according to the measurements in Figure 3.**10**.
  NOTE! Position the holes according to the measurements shown in “3.9.4 Important Measurements for Installation”.
- ► Mount the GAT SMART.Lock 70x1 into the locker intermediate wall. Observe the maximum tightening torques.
- ► Install the connection cable and plug it into the GAT SMART.Lock 70x1. The cable must be routed out of the locker so that it can be connected to the GAT SMART.Controller S 7020.

NOTE! For operation, the locking pin must be removed from the GAT SMART.Lock 70x1. Remove the locking pin only after first completing the installation and functional testing (see “3.6 Locking Pin”).

3.12 Mounting the Door Shackle

The door shackle is mounted on the inner side of the door using the door plate and distance plate. Complete the following steps to mount the door shackle.

► Mark the position of the drill holes for the door plates onto the door (see Figure 3.**8** and Figure 3.**11**). Note the vertical 1 mm offset to the opening in the GAT SMART.Lock 70x1.

► Insert the door shackle into the slot of the distance plate.

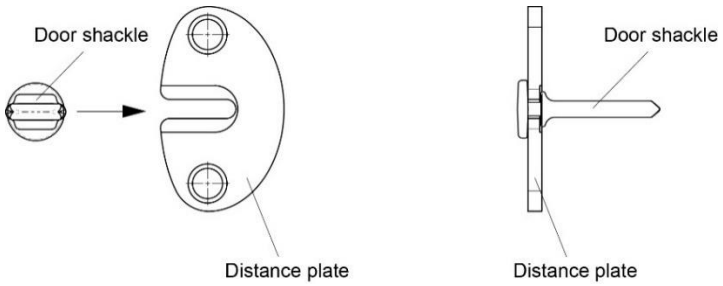


Figure 3.13 *- Door shackle and distance plate*

► Attach the door shackle with distance plate and door plate to the door.

NOTE! Use the correct countersunk screw type and length depending on the material and thickness of the locker door. The maximum screw diameter is 6 mm, and the maximum tightening torque is 2 Nm. When installed, the door bolt must guarantee a tensile force of 2000 N.

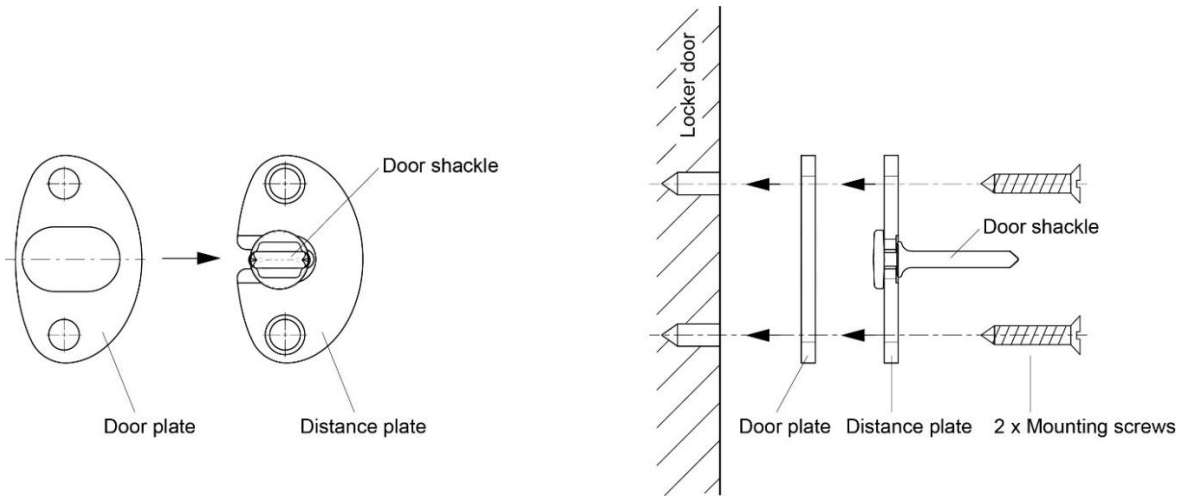


Figure 3.14 *- Mounting with a door plate*

NOTE! When attaching the door plate and distance plate, ensure that the screw heads sit completely flush in the distance plate. Select the length of the screws accordingly so that they do not protrude above the distance plate seating.

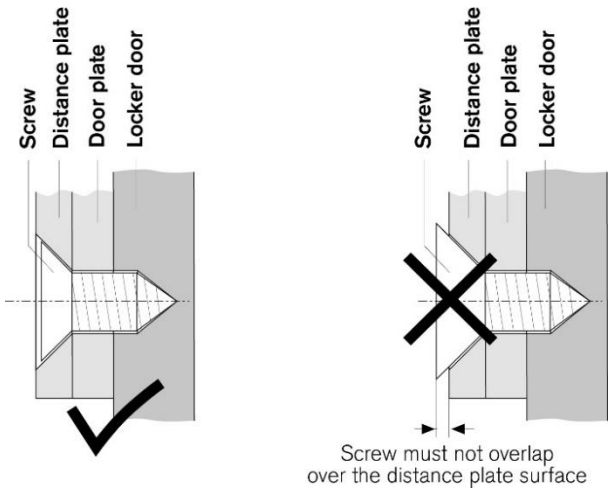


Figure 3.15 *- Detail of door shackle screws*

Note for Wood or HPL Doors:

The door plate is not required for wooden and HPL doors provided a corresponding cut-out is made in the door. Otherwise, the installation must be completed using the door plate.

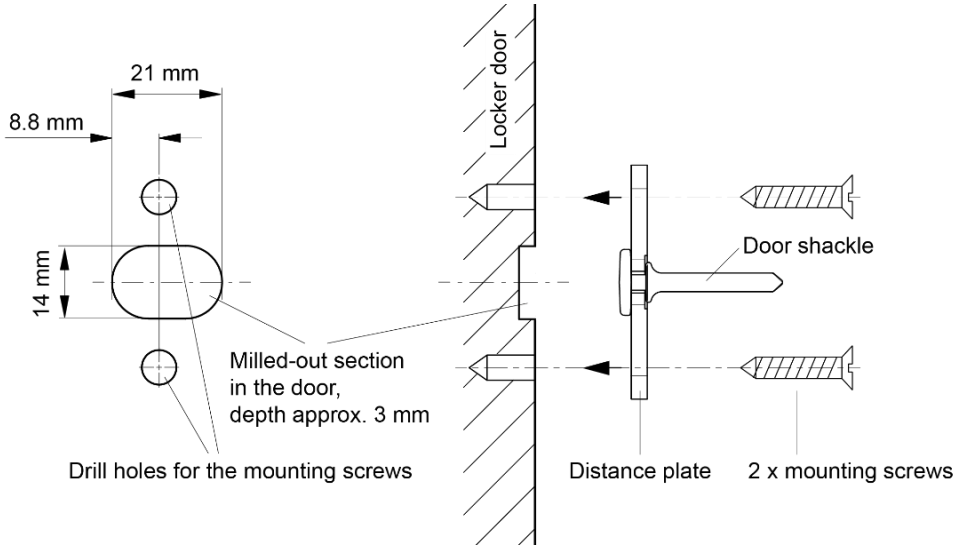


Figure 3.16 *- Mounting without a door plate but with a cut-out in the door*

NOTICE! When mounting the door shackle without the door plate, pay attention to the changed distance from the door surface to the lock. The position of the lock must be adjusted accordingly with such a type of installation (see Figure 3.**10**, the thickness of the missing door plate must be subtracted).

4 ELECTRICAL CONNECTIONS

This chapter describes the electrical connection of the GAT SMART.Lock 70x1 locker locks, the GAT SMART.Controller S 7020, GAT NET.Controller M 7020 and GC7.2000 M (lite) control units, and the GT7 Central Locker.

⚠CAUTION

Electric Shock

➔ *Touching live power cables may cause injury due to electrical shock.*

- The cable connections must always be made in a de-energized state and only by qualified personnel.

- Electrical connections may only be made by the specified target group.

- Always follow the instructions described in this chapter.

NOTICE

Damage or Malfunction

- Read the information in this chapter carefully before connecting the GAT SMART.Controller S 7020, GAT SMART.Lock 70x1, the main controllers or the GT7 Central Locker.

- Complete the cabling connections in the order and at the terminals described.

4.1 Target Group

This chapter contains information for personnel completing the electrical connections of the available hardware components described in chapter “2.5 System Components”. Observe the legal requirements for electrical installations where the devices are being installed, e.g., electrical connection only by suitably trained electrician, material specifications, and tools used. Also observe the spatial and climatic operating conditions of the devices.

4.2 System Structure

Each GAT SMART.Lock 70x1 connects to a GAT SMART.Controller S 7020 controller. Max. 24 locks can be connected per controller. The controllers are networked with each other via RS-485. The connection to a server is made via Ethernet using a main controller or central reader. Depending on the system configuration, the control (unlocking) of the individual GAT SMART.Lock 70x1 locks can be carried out, e.g., via PC software or a central reader.

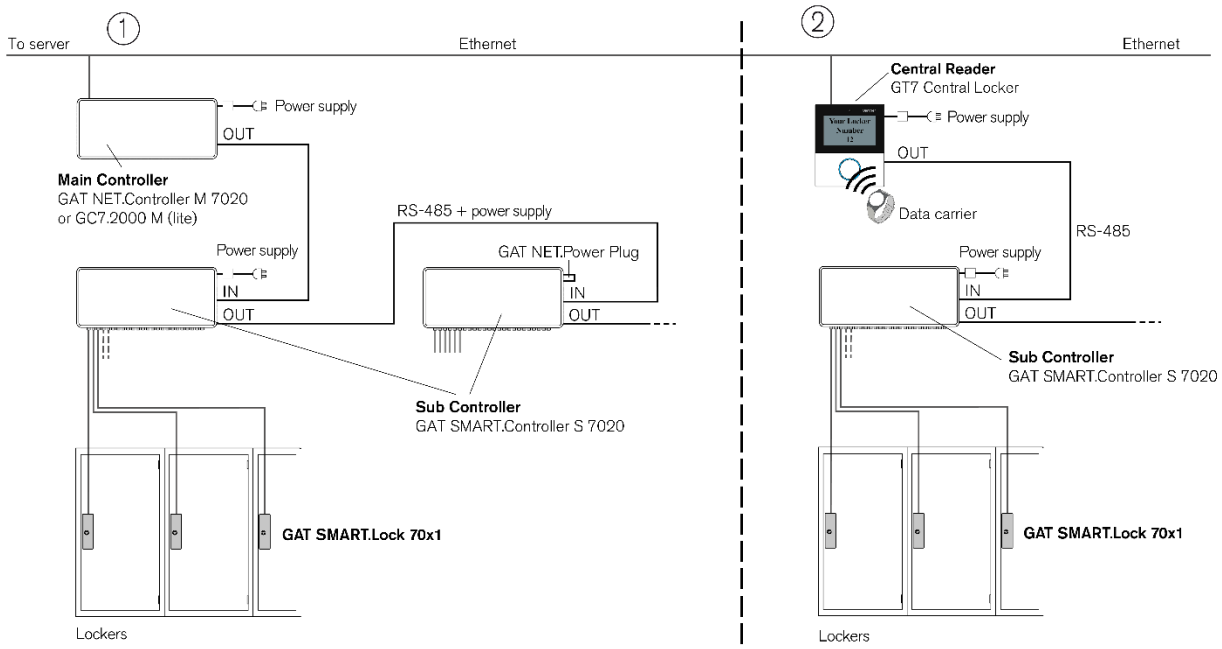


Figure 4.1 *- Structure of the GAT SMART.Lock system*

①: The GAT NET.Controller M 7020 main controller (or GAT NET.Controller M 7020 Light) or the GC7.2000 M (lite) is used to control the GAT SMART.Lock 70x1. For larger systems, several main controllers may be used together with each main controller able to control up to 8 sub controllers (or up to 3 sub controllers when using a GAT NET.Controller M 7020 Light).

②: Users identify themselves at the central reader GT7 Central Locker using their RFID data carriers to unlock the corresponding locker. Up to 8 sub controllers can be connected to each central reader.

4.3 GAT SMART.Lock 70x1

4.3.1 Power Supply

The GAT SMART.Lock 70x1 locks are supplied DC 24 V by the GAT SMART.Controller S 7020 sub controller via the connection cable (see “7 TECHNICAL DATA”).

4.3.2 Locking Status Feedback

A potential-free contact in the GAT SMART.Lock 70x1 indicates the locking status. If the contact is closed, the lock is locked (i.e., the locker door is closed).

NOTE! The feedback contact must be continuously supplied with at least 1 mA (at DC 24 V, see “7 TECHNICAL DATA”).

4.3.3 Connection Cable

A 5 m long connection cable (GAT NET.Lock Cable 5m, Part No. 734430) is used to connect the GAT SMART.Lock 70x1 to a GAT SMART.Controller S 7020 sub controller. The cable is equipped with a 4-pin Micro-Fit 3.0™ MOLEX connector on both ends.

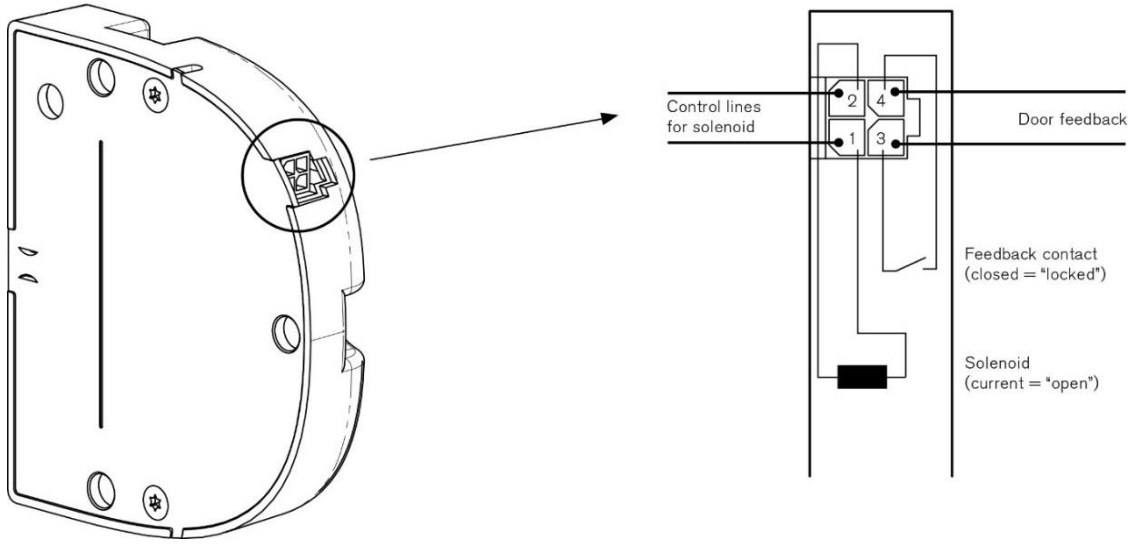


Figure 4.2 *- Cable connection at the GAT SMART.Lock 70x1*

If the standard connection cable is too short …

- … a 3 m cable extension can be used (GAT NET.Lock Cable Extension 3m, part no. 810021),
- … a second connection cable can be used with a GAT NET.Lock Connector (part no. 442123) as an extension.

The maximum cable length between the GAT SMART.Lock 70x1 lock and the GAT SMART.Controller S 7020 is 8 or 10 meters, depending on the option selected.

4.4 Sub Controller GAT SMART.Controller S 7020

4.4.1 GAT SMART.Lock 70x1 Connection

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 SMART.Lock 70x0 and the sub controller is 10 m (26 ft).

Depending on the type of sub controller, up to 24 locks can be connected per sub controller. The locks are controlled and differentiated by the corresponding channels marked 1 -24 on the controller. It is important to connect the locks to the correct sockets, or to configure the system accordingly afterwards.

► 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 SMART.Lock 70x0 locks to the 4-pin MOLEX connectors on the side panel of the GAT SMART.Controller S 7020.

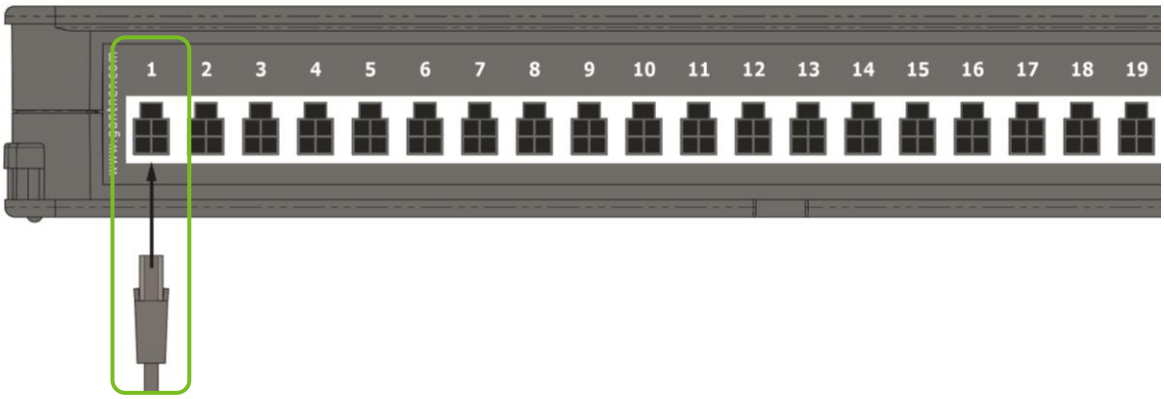


Figure 4.3 *- Connection of the GAT SMART.Lock 70x1 to a GAT SMART.Controller S 7020 sub controller*

CAUTION! Do not connect the RFID locker locks (GAT NET.Lock 7020) to the GAT SMART.Controller S 7020 as this can lead to irreparable damage of the RFID locker locks.

4.4.2 Sub Controller Connection

The sub controllers are interconnected via the serial RS-485 interface using RJ45 connectors. 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). 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.

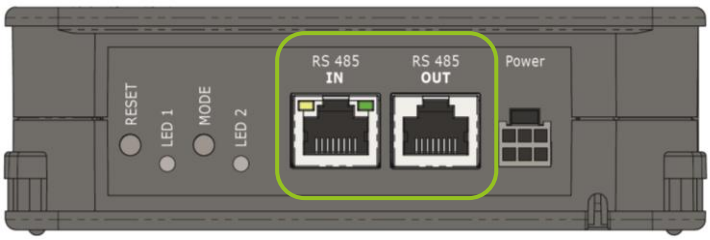
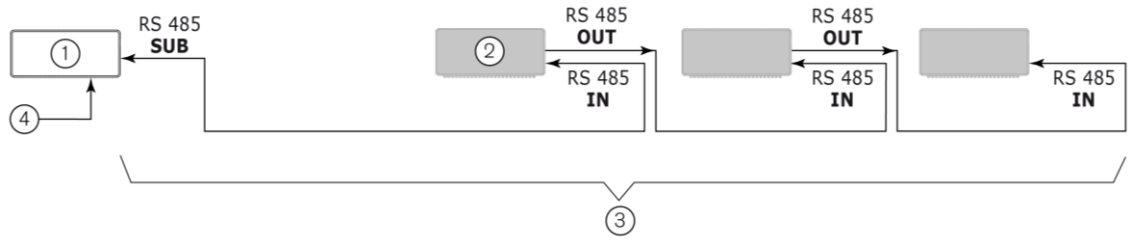


***Figure 4.4** – RS-485 connection on the GAT SMART.Controller S 7020*

- ► 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.



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

***Figure 4.5** – 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).

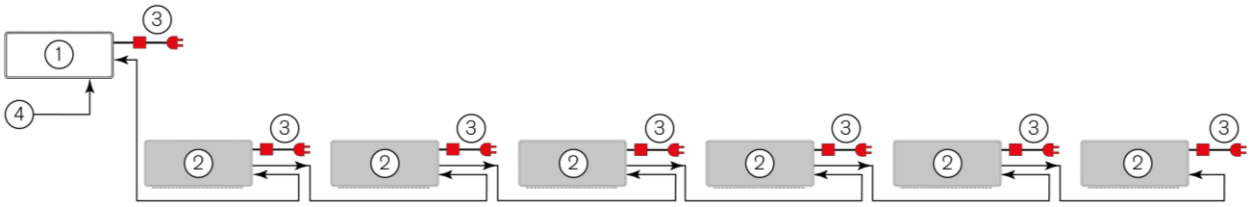
4.4.3 Power Supply Connection

The GAT SMART.Controller S 7020 connect to the mains power supply via an external power supply (GAT NET.Power Supply 7020 100-240V / VI, Part No. 1100051). Depending on the country, mains voltage may be UAC 230 V or UAC 115 V. A suitable power cord for the power supply must be ordered separately depending on the country of use (see “2.5 System Components”).

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

Option 1: Separate power supply

A power supply is connected to each sub controller. A maximum of 8 sub controllers (or 3 when using a main controller “Light” version) can be connected per RS-485 line (max. line length = 800m).

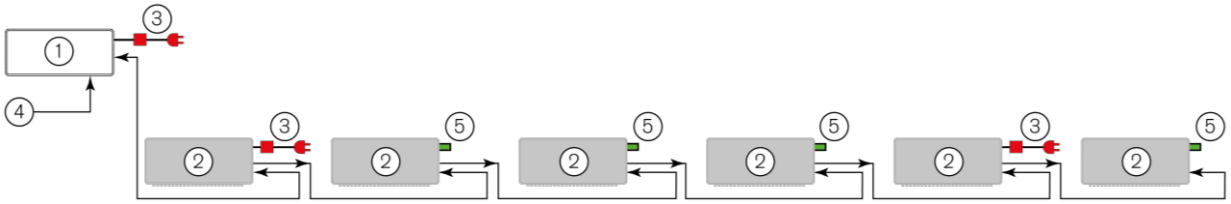


1. Main controller
2. Sub controller
3. Power supply
4. Ethernet

***Figure 4.6** – Option 1 - Separate power supplies*

Option 2: Shared power supply

- ► 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 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 4.7** – 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.

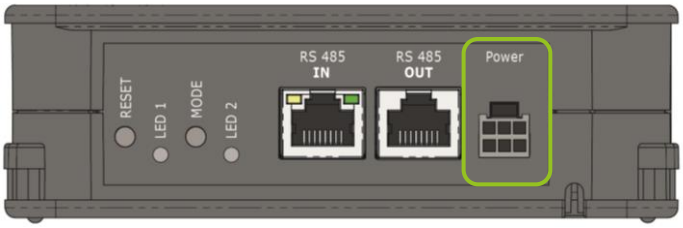


Figure 4.8 *- Power supply connection*

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.

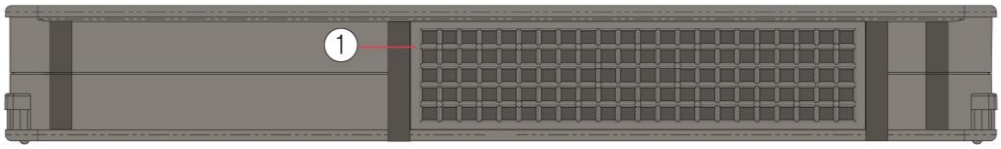


Figure 4.9 *- Power supply storage location*

4.4.4 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.

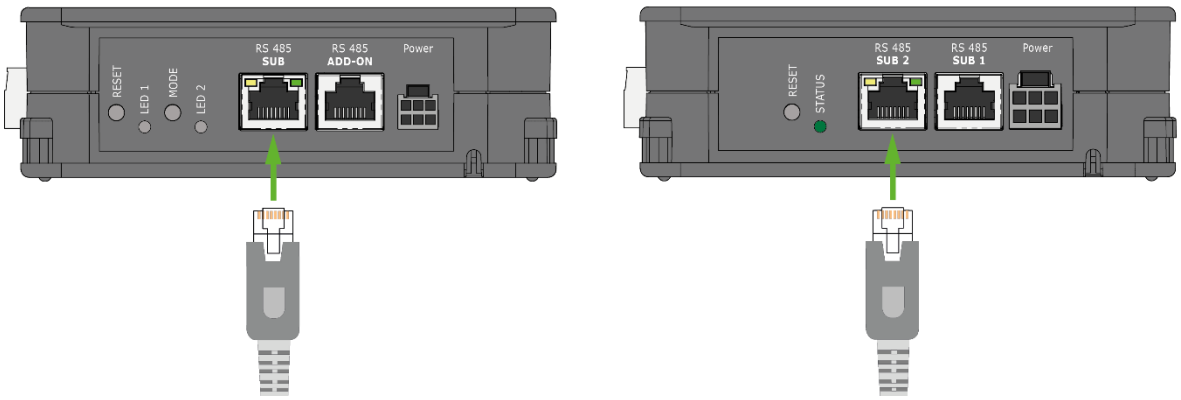


Figure 4.10 *– Connecting the sub controllers to the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

4.4.5 Signaling

To display its operating state, various LED indicators are provided on the GAT SMART.Controller S 7020.

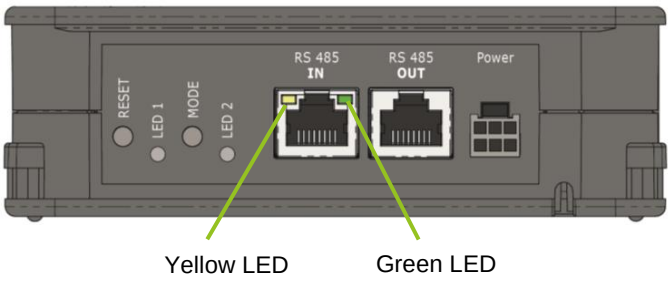


Figure 4.11 *- LEDs and buttons provided on the GAT SMART.Controller S 7020*

BUTTONS		
RESET	Two functions are possible: 1. To restart a controller, press and hold the RESET button for 5 seconds. 2. To reset a controller to its default settings, press and hold the RESET button for 12 seconds until the LED 1 lights up blue -> release the button and press the RESET button again. **NOTE!** The resetting of a controller deletes all configuration parameters saved in the controller and may only be performed by an authorized service technician.	
MODE	No function (reserved for future use)	
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)

4.5 Main Controller GAT NET.Controller M 7020 (Light) / GC7.2000 M (lite)

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).

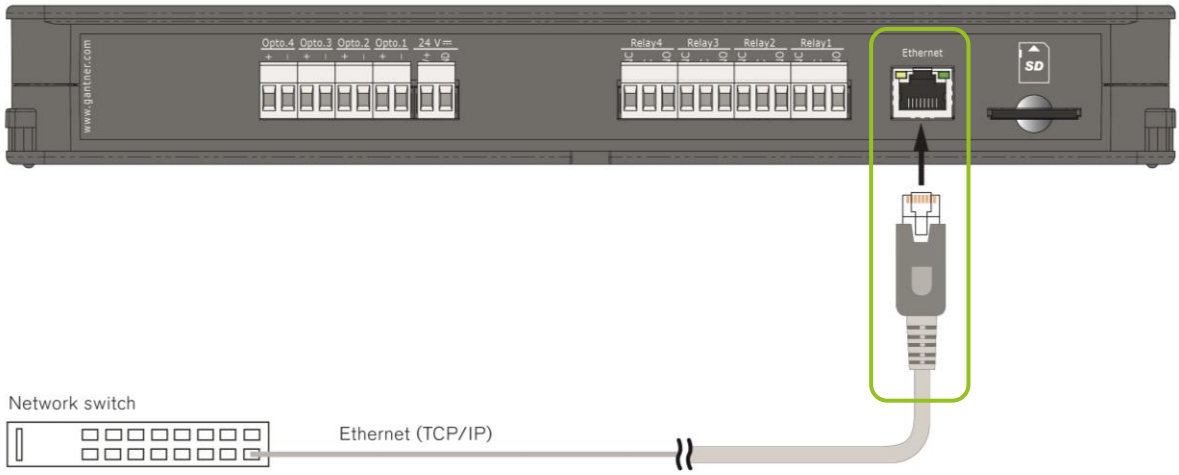


Figure 4.12 *- GAT NET.Controller M 7020 Ethernet connection*

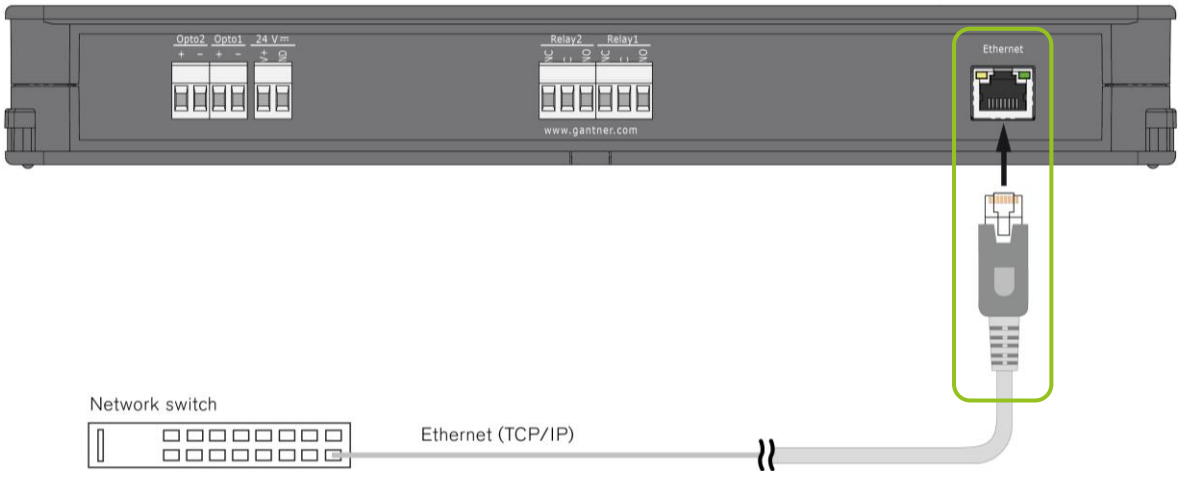


Figure 4.13 *– GC7.2000 M (lite) Ethernet connection*

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 (GAT NET.Power Supply 7020 100-240V / VI, Part No. 1100051). Depending on the country, mains voltage may be UAC 230 V or UAC 115 V. A suitable power cord for the power supply must be ordered separately depending on the country of use (see “2.5 System Components”).

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

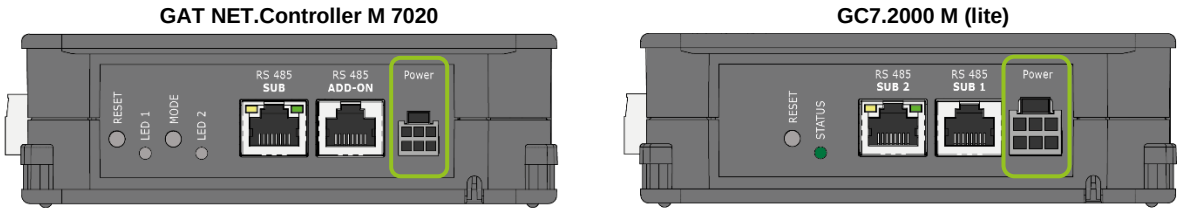


Figure 4.14 *- Power supply connection on the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

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.

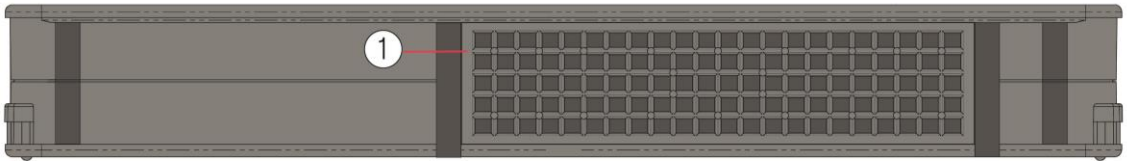


Figure 4.15 *- Power supply storage location*

4.5.3 Signaling

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).

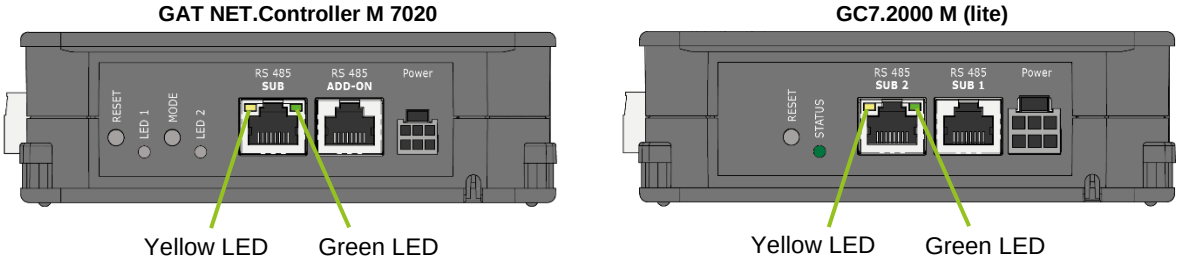


Figure 4.16 *- LEDs and buttons on the GAT NET.Controller M 7020 and GC7.2000 M (lite)*

BUTTONS		
RESET	Two functions are possible: 1. To restart a controller, press and hold the RESET button for 5 seconds. 2. To reset a controller to its default settings, press and hold the RESET button for 12 seconds until the LED 1 lights up blue -> release the button and press the RESET button again. **NOTE!** The resetting of a controller deletes all configuration parameters saved in the controller and may only be performed by an authorized service technician.	
MODE	No function (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)

4.6 Connection of the GT7 Central Locker Central Reader

To begin operating a GT7 Central Locker, at least one sub controller, the LAN network, and the power supply must be connected.

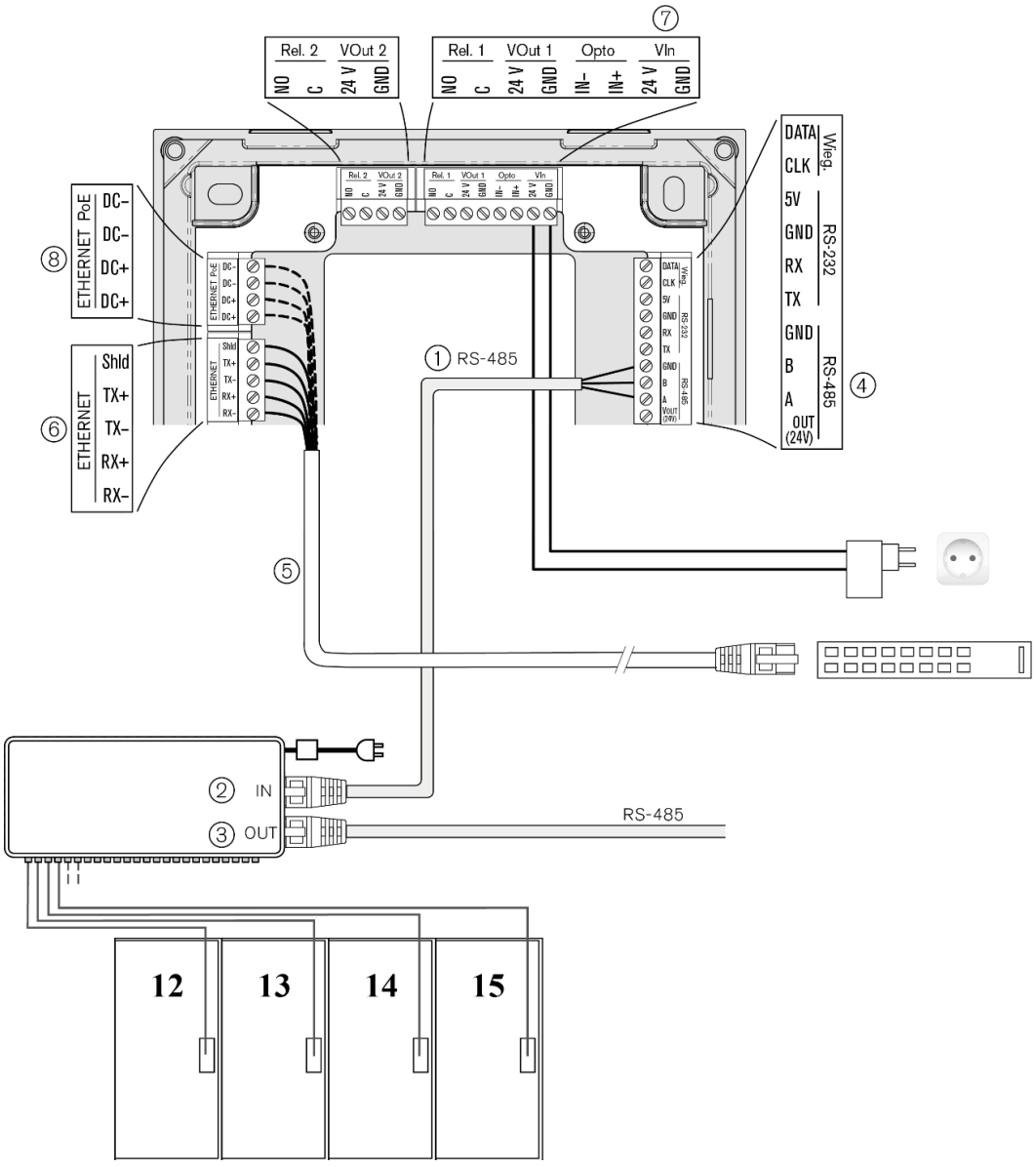


Figure 4.17 *– GT7 Central Locker electrical connections*

► Connect the RS-485 cable (1 in Figure 4.**17**) to the RJ45 socket on the sub controller labelled "RS 485 IN" (2 in Figure 4.**17**).

NOTE! The cable “Patch Cable Open End 1.5m” (GANTNER Part No. 618027) can be used for the RS-485 connection.

*Additional sub controllers can be connected directly to the first sub controller via the “RS 485 OUT” socket (3 in Figure 4.**17**). See "4.4.2 Sub Controller Connection" for more information.*

► Connect the other end of the RS-485 cable to the "RS-485" screw terminals (4 in Figure 4.**17**). The recommended wire colors are:

Terminal	Signal	Wire Color
A	Data line A	Blue
B	Data line B	Blue/white
GND	Ground	Green + green/white

***Table 4.1** – Wire colors RS-485*

► Connect the Ethernet cable (5 in Figure 4.**17**) to the "ETHERNET" screw terminals (6 in Figure 4.**17**). The wire colors are as follows (depending on the standard used):

Terminal	Signal	Wire Color TIA-568A	Wire Color TIA-568B
RX –	Receive signal RX –	Green	Orange
RX +	Receive signal RX +	Green/white	Orange/white
TX –	Send signal TX –	Orange	Green
TX +	Send signal TX +	Orange/white	Green/white
Shld	Shield	-	-

***Table 4.2** – Wire colors Ethernet*

► Connect the power supply to the GT7 Central Locker. Select one of the following options:
- Connect a separate power supply to the “Vin” screw terminals (7 in Figure 4.**17**), or,
- Connect the Ethernet cable (5 in Figure 4.**17**) to the "ETHERNET PoE" (8 in Figure 4.**17**) screw terminals. Next, connect the other end of the cable to the RJ45 socket of the PoE switch. Depending on the standard, the wire colors for the screw terminals of the GT7 Central Locker are as follows:

Terminal	Signal	Wire Color TIA-568A	Wire Color TIA-568B
DX +	PoE Supply +	Blue/white	Blue/white
DX +	PoE Supply +	Blue	Blue
DX –	PoE Supply –	Brown/white	Brown/white
DC –	PoE Supply –	Brown	Brown

***Figure 4.3** – Wire colors PoE*

NOTE! Please read the GT7 Central Locker manual for detailed information on the electrical connections.

5 CONFIGURATION

5.1 Main Controller Configuration

The PC software Relaxx can be used to configure the controllers of a locker locking system without a central reader. Please read the Relaxx software manual for detailed information on how to configure a GAT SMART.Lock 7000 system.

5.2 GT7 Central Locker Configuration

When using a GT7 Central Locker central reader, the GT7 terminal can be configured directly via a web interface or via GANTNER's cloud application - G7 Connect. Detailed information on these configuration options is provided in the GT7 Central Locker manual.

The configuration and control of the lockers and the assignment of authorizations is again carried out in the Relaxx software, in which the GT7 Central Locker is integrated. Please also read the Relaxx software manual for detailed information about the configuration.

6 OPERATION

6.1 Target Group

This chapter is intended for the system administrator and the operational personnel of the locker locking system. It contains information on the operation of the lockers and provides an overview of the configuration, monitoring, and control of the system using the Relaxx management software. No special expertise is required for this chapter.

6.2 User Operation for Lockers - Personal Locker Mode

Personal lockers (sometimes also referred to as rental lockers) are assigned to the persons/users in the Relaxx configuration software. Several lockers can also be assigned to one person, and it is also possible to assign several data carriers or persons to one locker.

6.2.1 Locking a Locker

During configuration, it can be set whether the user must first identify himself to lock his locker or whether the locker can be locked by simply pressing it shut without identification. When the locker door is closed, the door shackle engages in the GAT SMART.Lock 70x1 and the electronic lock automatically locks the door.

6.2.2 Unlocking a Locker

Operation with Central Reader GT7 Central Locker
The users identify themselves at the central reader. Depending on the configuration, either the assigned lockers open immediately or an individual locker can be selected via the touchscreen of the GT7 Central Locker and opened after an additional identification.
Depending on the type of central reader, the identification can be carried out using an RFID data carrier, a barcode card or via PIN entry.

Operation with Relaxx software
The Relaxx management software from GANTNER Electronic GmbH allows the software user the option of configuring the controllers and connected locks, and directly controlling (unlocking) them. A graphical overview shows the respective status of the lockers.

6.3 User Operation for Lockers - Free Locker Mode

The system is first configured in the Relaxx software. The user groups are assigned the locker groups that have been released for them. The users can then use any free locker within the assigned locker group with their data carriers.

6.3.1 Locking a Locker

The user first identifies themselves at the central reader. Depending on the configuration the first available locker is shown to the user, or the user can select an available locker from a list. After selection the locker, the user goes to the locker, puts his items into the locker and closes the locker door. The maximum available time for this purpose is configurable in the central reader.
If an attempt is made to close a locker without prior assignment, it will open again immediately. Depending on the type of central reader, the identification can be carried out using an RFID data carrier, a barcode card or via PIN entry.

6.3.2 Unlocking a Locker

To open a locker, the user identifies themselves at the corresponding central reader. If the user has previously used this reader to lock a locker, the locker will now spring open (depending on the configuration with a certain lead time) and the user can remove their belongings. A query can now be shown for the user (depending on the configuration) as to whether the user wants to keep the locker (e.g., in case of a temporary opening for removing individual items) or whether he wants to release it to be used by other users. If the user wants to keep the locker, he can lock the locker again by pressing it shut. The user is then re-assigned the same locker and by pressing the locker door shut, the locker is locked again and assigned to the user.

6.4 Relaxx – Management Software for the GAT SMART.Lock 70x1

To configure, monitor, and control the locker system, GANTNER Electronic GmbH offers the PC software Relaxx. The sub controllers and the connected locks are displayed graphically to indicate their statuses. The "Relaxx" Windows Service manages communication with the GAT SMART.Controller S 7020 controllers in the system.

NOTE! A separate user manual that describes all software functions in detail is available for Relaxx. The following pages provide a short overview of the software and its main functions.

6.4.1 Software Licensing

Relaxx must be licensed before being put into operation. In addition to the main software license, expansion licenses can be purchased for various additional modules that provide greater system control and functionality.

After a valid license has been registered in Relaxx, it is also necessary to activate the software. The software is only operable for 2 weeks if not activated during this time.

Please contact GANTNER Electronic GmbH for the license and activation codes.

6.4.2 User and Role Management

Relaxx uses an access management system. This means that a username and password is required to log in and access the program functions.

Users are assigned to exactly one authorization role. The authorization roles define the program functions that are available for the assigned users. The authorization roles are hierarchically structured, i.e., it is possible to assign new roles from existing roles within the hierarchy.

6.4.3 General Information and User Interface

The operation of Relaxx can be roughly divided into two different tasks:

- Configuration of the hardware (communication channels, controllers, and locks) and assignment of the lockers (locks) to the controllers by the system administrator.
- Control and monitoring of the lockers by the end user.

Both of these main tasks have its own user interface, which can be displayed via the "Organization" and "Hardware" tabs (11 in the following picture). There are also separate tabs for additional tasks such as scheduling locker reservations or assessing the log entries.

The following picture shows the user interface of Relaxx.

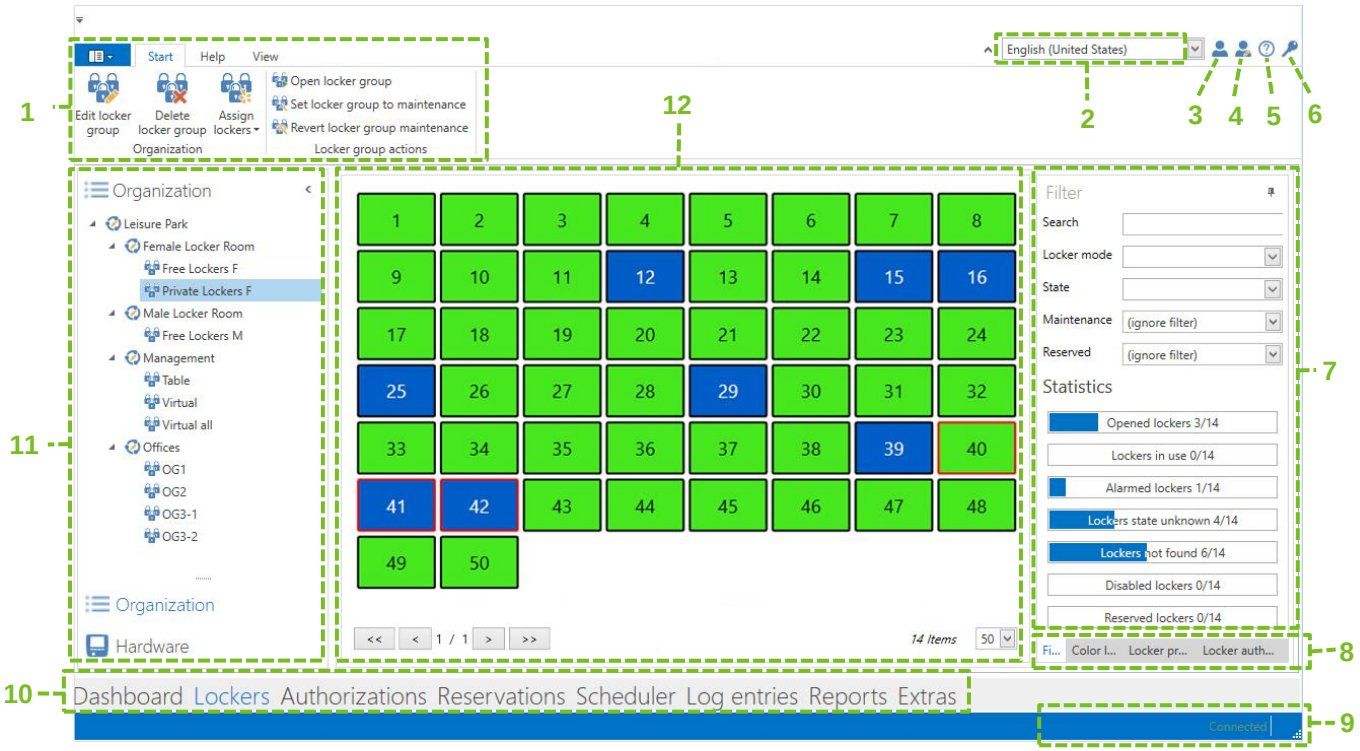


***Figure 6.1** – Description of the main areas of the Relaxx user interface*

1	Function bar:	This area shows all the functions that are available for the currently selected view (see 10).
2	Language selection:	Click on the drop-down menu to change the language of the Relaxx user interface. Restarting Relaxx is not necessary.
3	Logout user:	Click on this icon to log out of Relaxx.
4	Change password:	Click on this icon to change your password.
5	About Relaxx:	Click on this icon to view detailed information about the current version of Relaxx.
6	Licensing:	Click on this icon to view software licensing information.
7	Locker information area:	Information, statistics, and other tools for the locker selected in the overview (12) are available in this area.

8	Locker information tabs:	Four tabs are provided here for selecting the type of information displayed in the locker information area (7).
9	Status bar:	The status bar indicates whether the Relaxx service is running and whether the connection is ok.
10	Views:	Depending on the required task, the different views of Relaxx are available for selection here.
11	Organization / Hardware system overview:	This area is where the two main components of the locker system are displayed. Select between Organization and Hardware at the bottom of the area to display the system structure. Organization Here all lockers in the system are logically organized into areas and groups of lockers (e.g., male changing room, female changing room, etc.). Clicking on an area or locker group displays the corresponding lockers and their respective states in the locker overview (12). The way lockers are organized in this area represents a logical assignment and does not represent the physical connection of lockers to controllers. Hardware The communication channels and their assigned controllers, GAT Access and GAT Info devices are listed here. Information and configuration options are displayed for each device after selection in the list. The following icons indicate the status of each device:  = Device is in operation  = Connection to device lost (trying to reconnect)  = Connection to device stopped (not trying to reconnect)  = Device initializing or bookings being read  = Device disabled  = Device status unknown  = Device cannot be started (too few or missing licenses)
12	Locker overview / Device information:	Depending on the system selected in the organization / hardware system overview (11), different information is displayed here. Locker overview When an area or a locker group is selected, the lockers assigned to the selected area or group are displayed together with the current locker states. Device information When a hardware device (controller, GAT Access, GAT Info, etc.) is selected, this area displays the configuration settings of the device.

7 TECHNICAL DATA

7.1 GAT SMART.Lock 70x1

Nominal voltage:	DC 24 V
Permitted input voltage:	19 to 28 V (±20%)
Current consumption of the coil:	1 A @ 24 V (500 ms)
Actuation time:	max. 500 ms / 10% ED
Perm. switching current (feedback):	1 mA
Std. switching current (feedback):	Max. 0.1 A
Locking/unlocking cycles:	Min. 80,000
Retaining force:	Min. 2,000 N
Force on door inner side:	Max. 50 N
Housing material:	Die-cast zinc
Housing color:	Gray
Door shackle material:	MIM 316L
Door width:	Min. 230 mm
Installation position:	Arbitrary
Connection:	Socket (MOLEX, type Micro-Fit 3.0™, Nr. 043020-0401)
Dimensions:	84 x 72 x 18.5 mm (L x W x H)
Permitted ambient temperature:	-30 to +60 °C
Storage temperature:	-30 to +70 °C
Protective type:	IP 52
Protective class:	III
Weight:	Approx. 0.2 kg
Environmental class VdS 2110):	II (conditions in indoor areas)
Certification:	CE, FCC

7.2 GAT NET.Controller M 7020 (Light)

Nominal voltage:	DC 24 V
Power supply:	External power supply with different power cables available
Average power consumption:	typ. 3 W
Max. connectable GAT SMART.Controller S 7020:	- GAT NET.Controller M 7020: up to 8 - GAT NET.Controller M 7020 Light: up to 3
Memory:	Internal memory for 10,000 bookings. SD card slot for memory expansion, log files, firmware update, or person lists
Digital inputs:	- GAT NET.Controller M 7020: 4 x optocouplers - GAT NET.Controller M 7020 Light: no
Digital outputs:	- GAT NET.Controller M 7020: 4 x relays - GAT NET.Controller M 7020 Light: no
Communication interface to sub controller:	RS-485
Communication interface to server:	Ethernet
Connector types:	- Main to server (Ethernet): RJ45 - Main to sub (RS-485): RJ45 - Power supply: MOLEX
Housing material:	Plastic (ABS)
Dimensions:	310 x 133 x 42 mm
Permitted ambient temperature:	0 to +60 °C
Protection type:	IP 40
Protection class:	III
Weight:	Approx. 600 g
Environmental class (VdS 2110):	II (conditions in indoor areas)
Certification:	CE, FCC

7.3 GAT SMART.Controller S 7020

Nominal voltage:	DC 24 V
Power supply:	External power supply with different power cables available
Average power consumption:	0.5 W
Max. connectable GAT SMART.Lock 70x1:	Max. 24
No. of GAT SMART.Controller S 7020 per RS-485 line:	- GAT NET.Controller M 7020: max. 8 - GAT NET.Controller M 7020 Light: max. 3
Communication interface:	RS-485
Connector types:	- RS-485 to main controller or central reader: RJ45 - GAT SMART.Lock 70x1: MOLEX, Micro-Fit 3.0™ - Power supply: MOLEX
Housing material:	Plastic (ABS)
Dimensions:	310 x 133 x 42 mm
Permitted ambient temperature:	0 to +60 °C
Protection type:	IP 40
Protection class:	III
Weight:	Approx. 600 g
Environmental class (VdS 2110):	II (conditions in indoor areas)
Certification:	CE, FCC

7.4 GT7 Central Locker

Nominal voltage	
- Power supply:	DC 24 V (LPS/SELV)
- PoE:	PoE conf. to IEEE 802.3af, performance class 0
Permitted voltage range	
- Power supply:	DC 10 - 26 V (LPS/SELV)
- PoE:	DC 36 - 57 V
Input current	
- Power supply:	900 mA
- PoE:	300 mA
Nominal power consumption:	10 W
Output current	
- Vout 24V:	max. 300 mA
- Vout 5V:	max. 300 mA
Data storage:	Flash memory for configuration and booking data, screensaver, and advertisement pictures.
Internal clock:	Time saved 1 hour
Reader type:	
- GT7.x300:	- LEGIC advant
- GT7.x500:	- MIFARE: Classic (1k and 4k), Ultralight®, DESFire EV1® and EV2® - ISO 15693 - GANTNER.Connect
Reading field frequency	
- RFID	13.56 MHz
- Wireless interface:	2.4 GHz
Max. transmission power	
- RFID:	500 mW
- Wireless interface:	3.7 dBm (2.344 mW)
Reading range:	2 - 8 cm (depending on the data carrier)
Display elements/signaling	
- Display:	4.3´´ color display with capacitive touchscreen, 16.7 million colors, resolution 480 x 272 px, visible area 95.04 x 53.86 mm
- RFID reader:	LED ring, different colors
- Acoustic signaling:	Speaker
Host interface	
- Ethernet:	10/100 Mbps, IPv4 and IPv6
- WLAN:	IEEE 802.11b/g/n
Reader interfaces:	RS-232 (barcode) RS-485 (GANTNER expansion bus) Wiegand
Connection:	Screw terminals, 0.5 - 1.5 mm

Software integration:	- JSON interface - Generation 6 compatibility adapter (limited functions)
Housing	
- Front/rear part:	Plastic PC black gray
- Reader cover:	Plastic PC In-mold technology
- Display:	Hardened glass
Weight:	370 g (13 oz)
Permitted ambient temperature:	-10 to +50 °C (+14 to +122 °F)
Storage temperature:	-25 to +70 °C (-13 to +158 °F)
Protection type:	IP 52 (installed state)
Protection class:	III (Safety Extra-Low Voltage)
Environment class (VdS 2110):	III (outdoor conditions, weather protected)
Compliances:	CE, FCC, IC, ETL

Note:
This manual is valid as of 7th October 2022. It is subject to change.
Amendments and changes can be made without prior notice at any time.

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