LEHMANN®
www.lehmann-locks.com

GB

Primary Controller

Secondary Controller

Primary Controller / Secondary Controller

For connecting the RFID locks Captos and Captos iCharge

Operating Instructions

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SAFETY PRECAUTIONS

These operating instructions contain information for the qualified personnel who make the electrical connections to the controllers and the locks. The country-specific legal requirements for electrical installations must be considered. Installation may only be carried out by qualified personnel.

Electric shock.

- Touching parts can lead to injuries from electric shock.
- Do not touch the terminals when the product is receiving power.
- The installation, commissioning and maintenance of our devices must be carried out by appropriately qualified personnel. In particular, electrical connections may only be carried out by qualified personnel. The installation regulations in accordance with the relevant national regulations must be observed.
- Unless otherwise specified, the installation and maintenance of the devices must only be carried out in a voltage-free state. This applies in particular to devices that are connected to the low-voltage network.
- Use only Captos system components from Lehmann. Third-party components have not been checked in the system and can lead to malfunctions and dangers.
- Electrical components must not be opened.
- Check the electronic components and connection cables carefully for damage and when laying cables ensure that they cannot be damaged by sharp edges or crushing.
- A protective contact socket is required for the power supply unit in accordance with the current national regulations required.
- Ensure that there is sufficient distance between the cabling and sources of electromagnetic interference (such as medium-voltage lines).
- In the event of unusual heat or smoke development, the power plug must be pulled out immediately if this can be done without risk.

GENERAL DESCRIPTION

With the Captos and Captos iCharge locks, LEHMANN offers a cable-networked RFID locking system which, in addition to the locks, has other system components that are required for operation. Primary controller and secondary controller as well as power supply unit and cables are required to supply the locks with power. The individual locks are connected to a controller with connecting cables.

You have the option of configuring the locks with master and programming cards or using the LEHMANN Management Software LMS. If the LMS is used, the controllers are also used for data communication. The primary controller is the transfer point to the customer network (LAN).

Please be sure to observe all warning and safety instructions and read the operating instructions completely before you start with the installation, commissioning and programming.

Text and graphics have been prepared for you with care. No liability is accepted for any errors that occur. Changes to the scope of delivery and the technical data are also possible without prior notice.

SUPPLEMENTARY DOCUMENTS

- Operating Instructions Captos MIFARE / Captos iCharge MIFARE
- User manual for the LEHMANN Management Software LMS
- Installation manual for the LEHMANN Management Software LMS

TECHNICAL SPECIFICATIONS

Primary Controller / Secondary Controller

Nominal Voltage	12 VDC
Power Supply	external Power Supply 100-240 VAC, 50/60 Hz, 2 A, 138 W max.
Operating temperature	-5 °C to +60 °C
Storage temperature	-25 °C to +70 °C
Interfaces:	
- Controller (Primary) to Server	Ethernet
- Controller to Controller	RS485
- Controller to Locks	RS485
Connectors:	
- Power	KYCON KPPX-4P
- Controller (Primary) to Server	RJ45
- Controller to Controller	RJ45
- Controller to Locks	RJ12
- Max. Locks per Controller	24
Max. cable length	The max. cable length between lock and controller is 5m (1x 5m cable or 2x 2.5m cable with a coupling)
Dimensions	226 x 128 x 48 mm
Weight	Ca. 545 g
Compliance	CE, RoHS
Product ID	CON485K1 / CON485K2

CARE & MAINTENANCE

- Do not spill any liquid over or into the individual components of the lock, incl. primary controller and secondary controller
- Only clean the components of the locking system including the primary controller and secondary controller with a clean, soft and slightly damp cloth.
- Do not use any cleaning agents containing abrasives or solvents, as these may damage the housing.
- Treating any of the electronic and mechanical components improperly or in a any way other than described in these operating instructions may lead to malfunctions and the loss of warranty.
- Replace defective components immediately or take them out of operation.

INTENDED USE

The primary and secondary controllers described in these instructions may only be used with components of the LEHMANN Captos system. Only by using LEHMANN Captos components it is ensured that the quality requirements are met and reliable operation is possible. The use of third-party components, such as cables, cannot guarantee reliable operation. Permitted system components are specified below:

Name	**Function**
Captos	Furniture / locker lock
Captos iCharge	Furniture / locker lock, Additionally with USB charging function for smartphones and tablets (USB-A) and RGB backlighting
Primary Controller	• Power supply to the locks • Communication between locks and Lehmann Management Software LMS (Transfer point to the customer's LAN) • Communication between secondary controller and LMS
Secondary Controller	• Power supply to the locks • Communication between locks and primary controller
Power supply	Power supply of a primary or secondary controller. When using Captos locks, one power supply unit can supply up to three controllers with power. When using Captos iCharge locks one power supply unit per controller is required.
Power cord	Connection between power supply unit and country-specific socket
Power connection cable	For power supply between a controller and a downstream controller instead of a power supply unit when using Captos locks (not possible with Captos iCharge locks!).
Connection cable	• 4-pole cable with RJ12 plugs • Energy and data connection between locks and primary or secondary controller (max. cable length 5m) • Data connection between controllers
LEHMANN Management Software „LMS Online"	Software for the administration and configuration of the Lehmann RFID locks. LMS is operated in the customer's IT infrastructure. LMS Online is a special LMS license for the use of functions in connection with Captos and Captos iCharge.
Master- and programming cards	To configure the locks if the LMS is not to be used
User cards	The transponders contain encrypted information and are equipped with individual access authorizations for the locks and serve as keys for authorized persons. If transponders from third-party manufacturers are to be used, it is strongly recommended that LEHMANN carries out a compatibility and range check in advance.

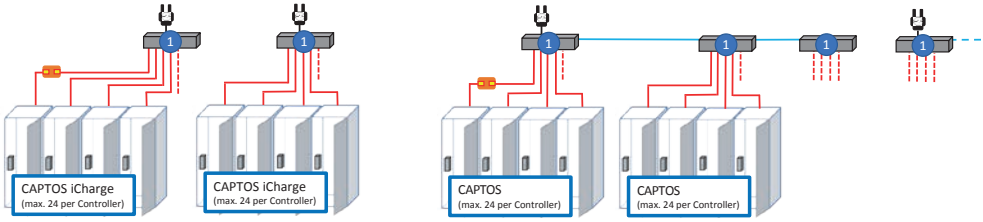
FUNCTION DESCRIPTION

A distinction is made between „offline operation“ and „online operation“ for the controllers:

„Offline-operation“:

The LEHMANN Captos and Captos iCharge locks can either be configured with master and programming cards or with the LEHMANN Management Software LMS. In “offline operation”, the controllers are mainly used to supply power to the locks.
If the locks are configured and managed in „offline mode“ with the LMS, then the locks are not directly networked with the LMS via the customer‘s network. In this case, configuration changes are transferred to the locks using the LEHMANN Data Transfer app and an NFC-enabled Android smartphone.
Primary controllers and secondary controllers supply the Captos and Captos iCharge locks with power via cable. Up to 24 locks can be connected to one controller. A data cable is not required between the controllers in „offline operation“. If Captos locks are connected to the controllers, up to three controllers can be supplied with power from one power supply unit. To do this, the controllers must be connected to one another with power connection cables. If Captos iCharge locks are connected to the controllers, each controller must be supplied with power from a separate power supply unit.

Figure: Schematic representation of „offline operation”



1 Primary or secondary controller
(if you want to switch to „online operation“ at a later point in time, at least one primary controller is required.)

Power supply unit (with Captos locks only required on every 3rd controller)

Data connection cable RJ12

Power connection cable Mini DIN

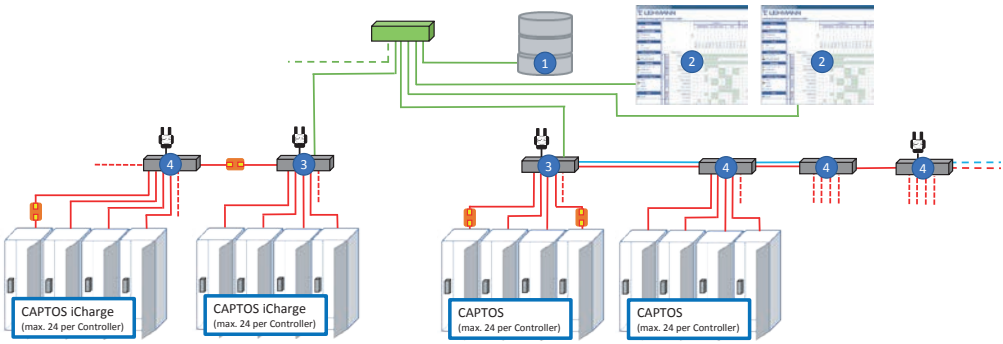
Coupling / plug for connecting two data connection cables

„Online-operation“:

During „online operation“, the locks are managed and configured in the LEHMANN Management Software LMS (license key „LMS Online“). The LMS is operated in the customer‘s IT infrastructure. The Captos or Captos iCharge locks are connected directly to the customer‘s network and thus to the LMS via the primary controller. The controllers supply the locks with power and also ensure data communication between the LMS and the locks. The primary controller is connected to the customer‘s network via Ethernet cable and acts as a transfer point. At least one primary controller is required for „online operation“. Several primary controllers can be used in a project. Up to 24 locks and a total of up to 32 secondary controllers can be connected in series to a primary controller. The controllers are connected to one another with connecting cables. Up to 24 locks can also be connected to each secondary controller. If Captos locks are connected to the controllers, up to three controllers can be supplied with

power from one power supply unit. To do this, the controllers must be connected to one another with power connection cables. If Captos iCharge locks are connected to the controllers, each controller must be supplied with power from a power supply unit.

Figure: Schematic representation of „online operation”



LAN customer side

1 LMS server (license: „LMS Online“)

2 LMS client (license: „LMS Online“)

3 Primary Controller

4 Secondary Controller (max. 32 connected in series to a primary controller)

Power supply unit (with Captos locks only required on every 3rd controller)

Data connection cable RJ12

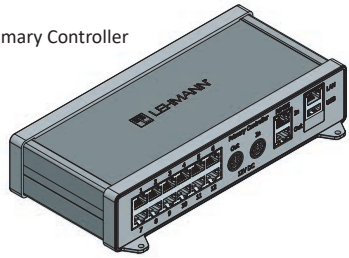
Power connection cable Mini DIN

Coupling / plug for connecting two data connection cables

PACKAGE CONTENT

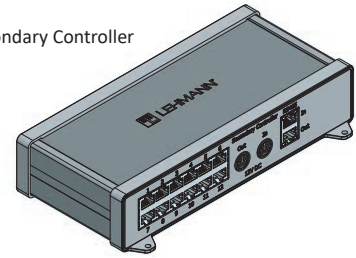
In addition to the primary controller or secondary controller, a power supply unit and a power cable are required to connect the power supply unit to a country-specific socket. Power supply unit, power cord, power connection cable as well as connection cable must be ordered separately. Screws for the optional attachment of the controller to the cabinet wall, for example, are not included in the scope of delivery. In addition to the controller, these operating instructions are part of the scope of delivery.

Primary Controller



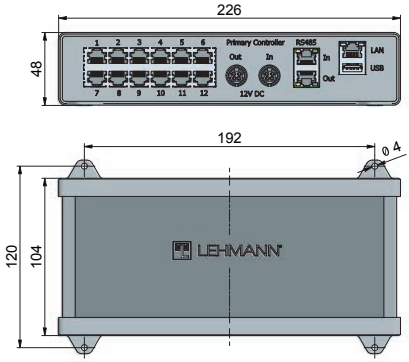
or

Secondary Controller

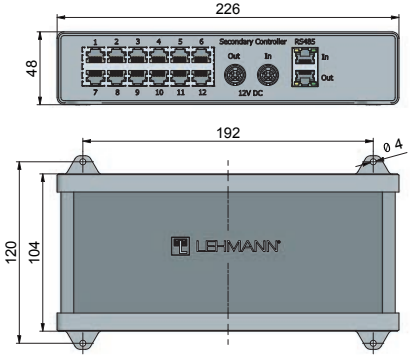


DIMENSIONS

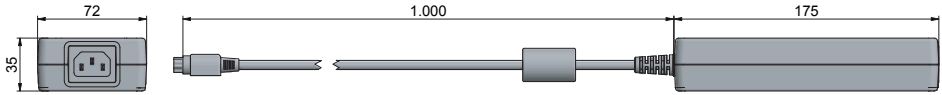
Primary Controller



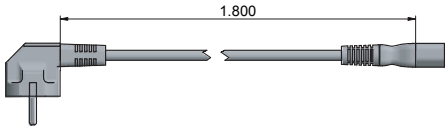
Secondary Controller



Power supply



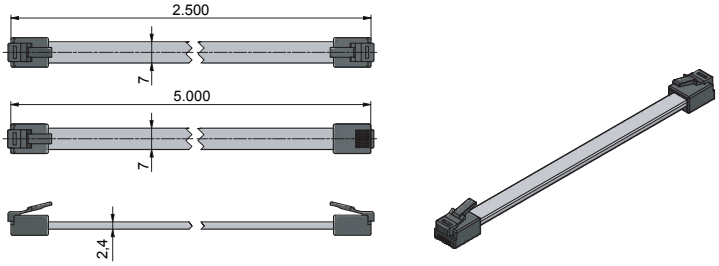
Power cord



Other variants with country-specific plugs of the same length are available.

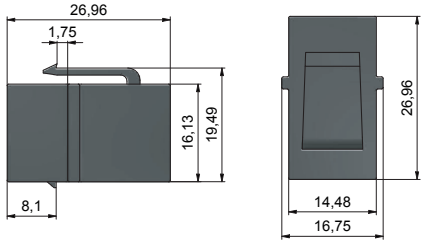
Power connection cable

Connection cable



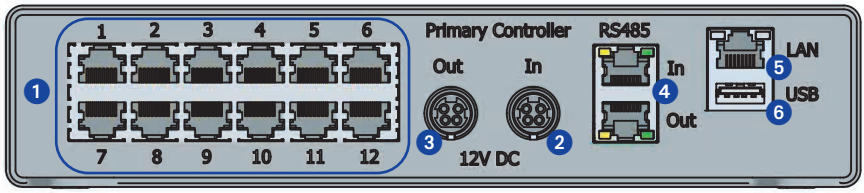
All dimensions in mm.

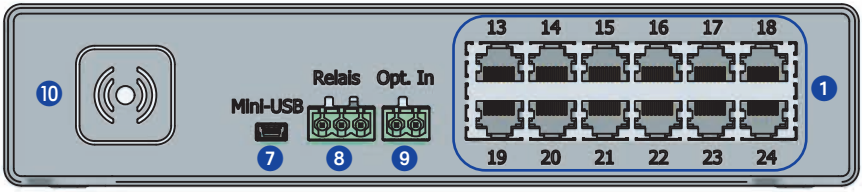
Coupling / plug for connecting two data connection cables



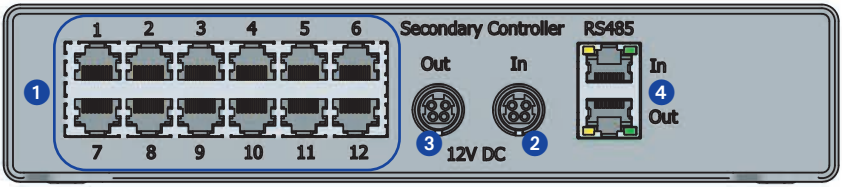
DESCRIPTION OF THE INTERFACES

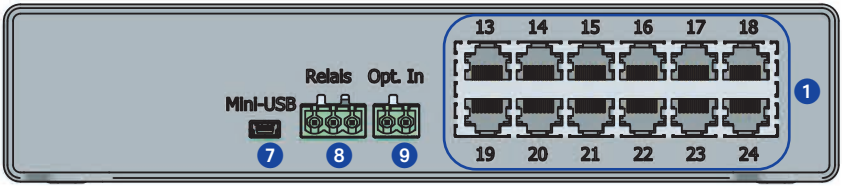
Primary Controller





Secondary Controller





All dimensions in mm.

1. Connections for connecting cables coming from locks
2. Input power cable
3. Output power connection cable for supplying a controller
4. Input / output connection cable for connecting additional controllers (RS485)
5. LAN / Ethernet port for connection to the customer‘s network (only with primary controller)
6. USB type A port (only with primary controller)
7. Mini USB
8. Relais for future functions
9. Opt.-In (e.g. for signal contact of a UPS unit)
10. RFID eading field (only with primary controller)

NETWORK INTERFACES

Ethernet (TCP/IP)

Communication takes place via an Ethernet interface labeled “LAN.” During the commissioning process, the IP configuration is assigned to the Primary Controller. It then uses, for example, a fixed IP address or searches for a DHCP server. The main application uses a proprietary protocol to communicate with the LMS server. This protocol is transmitted via HTTP, and communication is activated during the commissioning process. The port of the LMS server is defined during commissioning and must be reachable by the Primary Controller. The Primary Controller acts as the client and initiates the connection. For maintenance and service purposes, SSH (TCP port 22) is active on this interface. Login is secured by a strong (128-bit) password that is unique for each device. Access is not required during normal operation and can be blocked by the network firewall if necessary.

RS485

Communication takes place via a wired interface labeled “RS485” or with the numbers “1” to “24.” The main application uses a proprietary protocol to communicate with Secondary Controllers or Captos locks. The Primary Controller acts as the master system. For maintenance and service purposes, a test protocol is active, which is not required during normal operation. Login is secured by a strong (128-bit) password that is unique for each device.

CABLE ROUTING FROM LOCK TO CONTROLLER (RECOMMENDATION)

There are different ways to route the cable from the lock to the controller. The instructions for inserting the connecting cable into the lock as well as the instructions for assembling the lock in the cabinet can be found in the operating instructions „Captos MIFARE / Captos iCharge MIFARE“.

We recommend cabling the locks in such a way that individual cabinet elements can be exchanged (see figure: Cabling on the cabinet module). It should be taken into account that in the event of a cabinet exchange, there is sufficient cable length to pull the cabinet out of its installation position and then to loosen the cables from the locks in the next step. For example, couplings (cable connection sockets) can be used to remove or replace individual cabinets from the cabinet wall without great effort. Alternatively, a correspondingly large cable loop can be laid with continuous cabling. It should be absolutely avoided that cables are subjected to tensile stress during normal operation or through installation and removal. It is recommended that cables are clearly labeled at both ends, for example according to the cabinet number. This simplifies the service case and any troubleshooting.

Cable ends that are too short can mean that the plug connectors of the locks can no longer be reached and damage-free dismantling is no longer possible.

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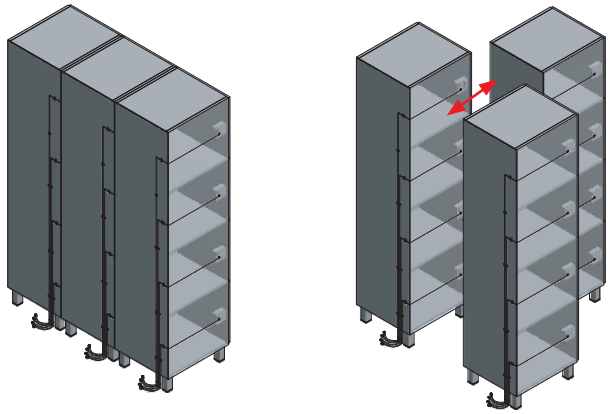
The locks should be connected with as little cable as possible. Wall mounting options are available on the controller housings. When cabling and placing the controller and power supply unit, make sure that these components are accessible in the event of a defect or power failure. A defect in the power supply unit or a controller can mean that the locks connected there can no longer be operated. Access to power supply units and controllers must be ensured for maintenance work and in the event of a defect.

The Primary Controller must be protected against vandalism, theft, and tampering. We recommend storing it in a location inaccessible to unauthorized persons, such as a locker (optionally protected with a battery-powered or mechanical lock) or behind a screwed cover.

Figure:
Cabling on the cabinet module



CONNECTING THE CONTROLLER

Power supply of the controller:

The controller is supplied with power via the 100 / 240V power supply unit. The country-specific power cord must also be ordered for this power supply unit. Depending on the country of use, different cables are available for the power supply unit. The power cables must not be shortened. Connect the incoming power cable from the power supply to the IN socket on the controller. Connect the power supply to a secured socket.

Figure: Primary controller power connection

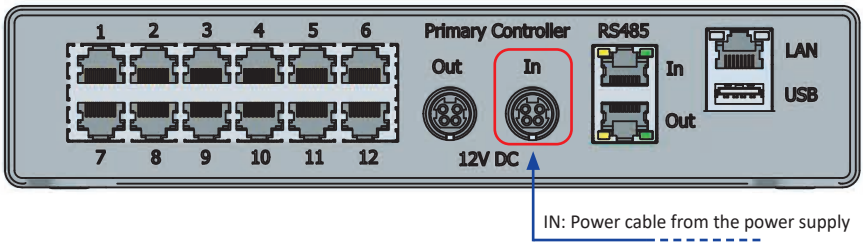
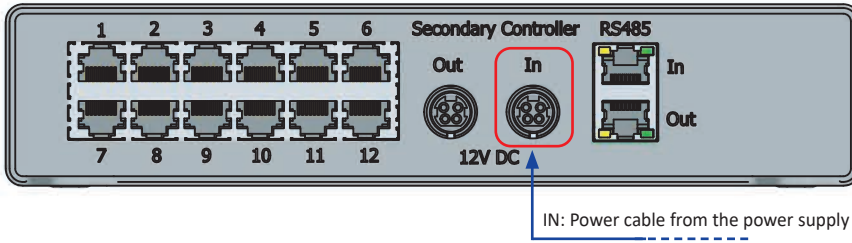


Figure: Secondary controller power connection



Connecting the connection cable from the lock to the controller:

The locks are connected to the controller with connecting cables. The maximum cable length between lock and controller is 5m (1x 5m cable or 2x 2.5m cable with a coupling). The connecting cables of the locks must not be shortened. If the cable is too short, a second connection cable can be used as an extension by means of a coupling. Insert the RJ12 plug of the connection cables that come from the locks into the connections on the controller (sockets 1 - 12 on the front, sockets 13 - 24 on the back). There is no need to adhere to a specific sequence when assigning the connections for the connection cables on the controller. Up to 24 locks can be connected to one controller.

Figure: Connecting the connecting cable from the lock to the primary controller

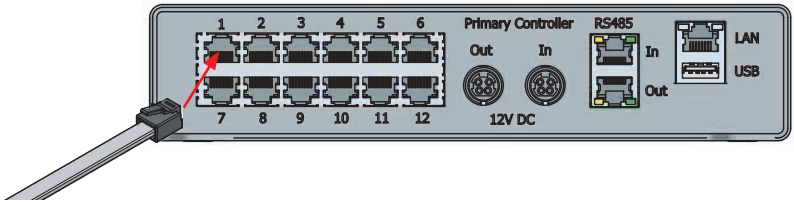
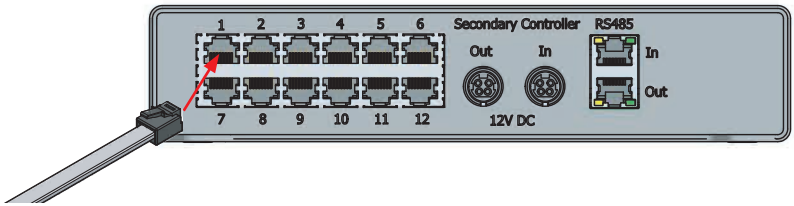


Figure: Connecting the connecting cable from the lock to the secondary controller



If the power supply to the controller is ensured and the connection cable is correctly plugged into the lock and controller, a function test can be carried out with the installation card. A detailed description of the installation card can be found in the „Captos MIFARE / Captos iCharge MIFARE“ operating instructions.

Continued on page 12

Power supply is established	
Power supply is established	

Closing		
	Hold the installation card in front of the lock	

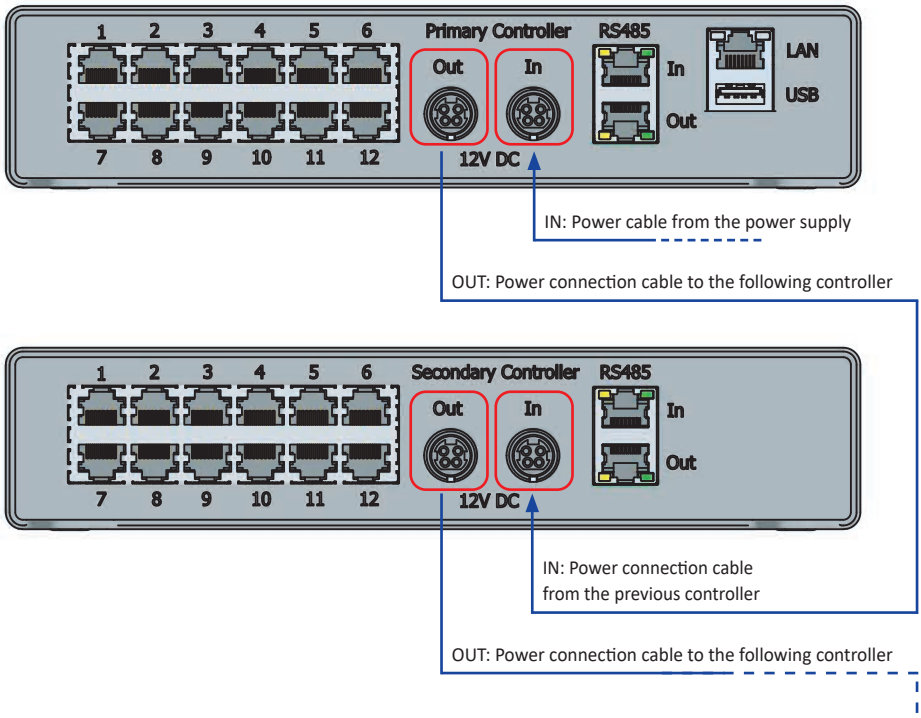
Opening		
	Hold the installation card in front of the lock	

Power supply for up to three controllers with one power supply unit:

ATTENTION: This function is only possible with Captos and not with Captos iCharge locks.

The controller is supplied with power via the 100 / 240V power supply unit. If Captos locks are used, only one power supply unit is required for up to three controllers. In this case the first controller is connected to the power supply unit, the two following controllers are connected to each other with power connection cables (MINI DIN power connection cables). The Power IN and Power OUT connection sockets on the controllers are used for this. A distinction must be made between IN and OUT! Connect the incoming power cables from the power supply unit or from a previous controller to the IN socket and the outgoing power connection cables to a subsequent controller to the OUT socket. Connect the power supply unit to a socket according to the technical specifications.

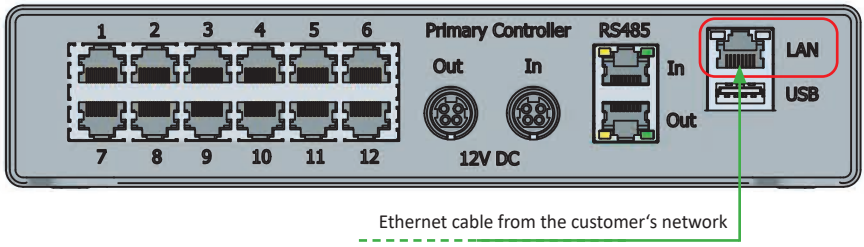
Figure: IN and OUT sockets for power supply on controllers



Connecting of the primary controller to the customer‘s network (LAN) (only applies to „online operation“):

For „online operation“, the primary controller must be connected to the customer‘s network (LAN). Only primary controllers can be connected with an Ethernet cable to the LAN and thus to the server on which the LEHMANN management software LMS is installed. Several primary controllers can be used per project. They are connected to the network separately.

Figure: Connection of the Ethernet cable to the primary controller in „online operation“



The Primary Controller must be commissioned in a secure network and registered with the LMS server. The goal is to prevent unauthorized third parties from accessing network traffic. This can be achieved, for example, תועצמאב a VLAN or VPN. This provides additional protection beyond the existing encryption. If network security is in question, commissioning can alternatively be carried out using the LEHMANN Data Transfer App without network access. In the Data Transfer App, select the “Add” option instead of “Direct.”

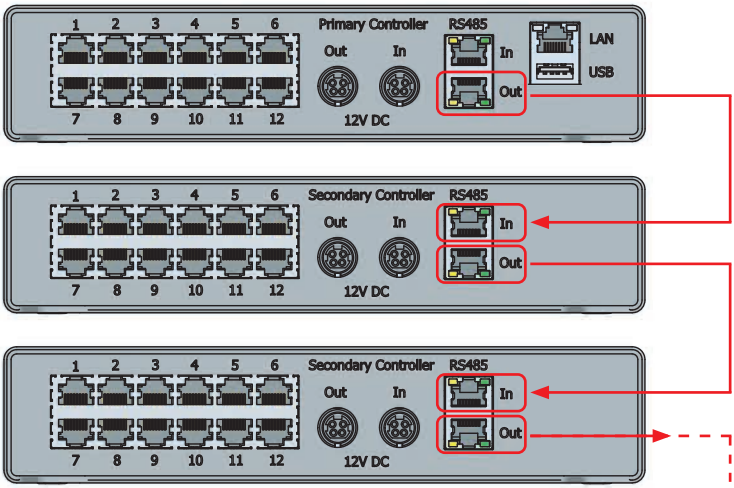
Continued on page 14

ATTENTION: You can find more information on commissioning the primary controller in „online operation“ in the user manual „LEHMANN Management Software LMS“ in chapter 3.

Networking of the controllers for data communication with one another (<u>only applies to „online operation“</u>):

Only primary controllers can be used as a transfer point to the customer‘s network (LAN). Up to 32 secondary controllers can be connected in series with a primary controller. The data connection between the primary controller and the second-day controller is made via the connection cable with RJ12 plugs. To do this, the connection cable is plugged into the RS485 sockets on the primary controller and secondary controller. The sockets are labeled IN and OUT. Make sure that the connection cables are connected in such a way that the cables leading to the downstream controller are plugged into the OUT sockets. Connection cables from the previous controller are plugged into the IN sockets.

Figure: IN and OUT sockets for data communication between controllers



EMERGENCY POWER SUPPLY

In the event of a power failure, the locks cannot be opened or closed. The locks do not open automatically in the event of a power failure. Changes to the configuration or authorization are also not transferred during a power failure.

It is therefore recommended to consider an emergency power supply when planning the project with Captos or Captos iCharge locks. The emergency power supply can be connected in the form of a UPS (uninterruptible power supply) directly in front of the controllers. A generator for the entire building technology also fulfills the purpose. It should be taken into account that components that provide the power supply for the individual locks, such as the controller and power supply unit, are placed in such a way that they are accessible and replaceable in the event of a power failure.

The power consumption depends on the number of locks and controllers. Based on this and the time required for the emergency supply, an emergency power supply should be designed. The controllers have configurable + 5V signal inputs for emergency power operation. These inputs can be used to reduce the energy requirement during emergency power operation by deactivating the USB charging function and the status and background lighting on Captos iCharge.

FIRMWARE UPDATE OF THE CONTROLLER

If the controllers are used in „online operation“, the firmware on the controllers can be updated by using the LEHMANN Management Software LMS if necessary. This process takes place automatically after an authorized activation of the update process.

If the controllers are used in „offline mode“, the firmware update is carried out via the mini-USB socket on the individual controllers. The “LEHMANN Firmware Updater” software is also required for this.

The exact description of the update process can be found in the LMS operating instructions or the „LEHMANN Firmware Updater“ software.

FIRMWARE UPDATE OF THE LOCKS VIA THE CONTROLLER

If the Captos and Captos iCharge locks are used in „online operation“, a firmware update is carried out on the locks via the LEHMANN Management Software LMS if required. This process takes place automatically after an authorized activation of the update process.

If the Captos and Captos iCharge locks are used in „offline operation“, the firmware update is carried out via the mini-USB socket on the respective controllers. The “LEHMANN Firmware Updater” software is also required for this.

The exact description of the update process can be found in the LMS or the „LEHMANN Firmware Updater“ software.

DISPOSAL

Dispose of the controller in accordance with local regulations and guidelines.

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DIN EN ISO 9001:2015 zertifiziert

BDA Primary Controller / Secondary Controller 2026-03-23 (GB)