Technical Documentation

A Crane Co. Company

currenza clip®

Operating Instructions for the currenza clip MDB currenza clip Multi Interface

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1 General information

This chapter provides a general overview of the advantages and options of the currenza clip reader. The first section, however, is designed to help you navigate easily within these operating instructions.

General information about these instructions

These operating instructions describe the design and operation of the currenza clip reader. Chapters 8 and 9 describe the necessary steps for starting up and operating the currenza clip reader. The "Technical data", the "Index" and the "Glossary" support the search for specific explanations.

Text conventions

To make it easier for you to navigate within these instructions and to operate the device, the following accentuations were made in the text:

Safety instructions which you must observe in order to protect operators and equipment.

Instructions which you must observe in order to protect the environment.

Special notes which are to facilitate the use of the currenza clip reader.

At the beginning of each chapter you will find a short "guide" which summarizes the contents of the chapter.

1 2 3 ... Requests to perform an action are numbered in another typeface.

(1/2) Reference to a figure. The number preceding the slash represents the number of the figure. The number following the slash represents the item number in the figure.

General information about the currenza clip reader

The currenza clip reader is designed for use in closed cashless systems with various interfaces. I. e. the currenza clip reader permits cashless payment of goods and/or services, e.g. within a company.

The currenza clip reader has an interface for coin validators and coin changers, and an interface for the vending machine and, if required, further peripheral equipment. The bus systems which can be used for data transmission to the vending machine or to the peripheral equipment depend on the configuration level of the device. The basic model *currenza clip MDB* supports exclusively the protocol MDB (slave), whereas the *currenza clip Multi Interface* model supports - besides MDB (master/slave) - the protocols Executive and BDV.

The currenza clip reader consists of:

- a control unit and
- an antenna

Data exchange between control unit and antenna is effected via a coaxial cable. Due to this modular design it is possible to install the control unit and the antenna in different locations. The user can only access the antenna. The control unit is protected in the device housing.

The currenza clip reader is configured exclusively through a configuration software. Access to the device requires always that you know the administration code. The administration code is assigned during initialization of the currenza clip reader by the operator. An administration code is assigned to every closed cashless system.

You can use user cards or user keys as means of payment.

The user cards and user keys are identical in respect of their functions. In these instructions "user card" stands for the two means of payment.

You can set up several purses on the chips of the user cards. The purses set up differ in the administration code. Via the administration code the currenza clip reader determines the account to be debited. Consequently the user cards can be used for several operators.

The currenza clip reader accepts only user cards with the same administration code.

Further possible applications of the user cards / user keys include e. g.:

- access controls
- time recording
- saving of personal data

The features of the currenza clip reader

- Flexible and modular design
- Open architecture - various applications are possible
- MIFARE technology (13.56 MHz)
  - Safe, encoded communication between the control unit and the card or key
  - 15 memory areas available on the card or key
- ISO 14443A, ISO 15693
- High security due to:
  - 9-digit administration code
  - log file
  - enable and disable lists
  - automatic assignment of lock flags to cards / keys
  - expiry date

Scope of delivery

Beside the currenza clip reader the following equipment will be delivered:

- the vending machine connection cable
- a pressure-sensitive reclosable fastener for the control unit
- connection cables for peripheral equipment, if any.

Accessories

The following accessories are available for the currenza clip reader:

The bold items are absolutely necessary for starting up your currenza clip reader.

- **serial data cable**
- **ClipManager**
- ClipCard
- ClipAudit
- user cards or user keys
- function key

ClipManager

ClipManager is the configuration software for all data management purposes. ClipManager includes ClipCard and ClipAudit.

ClipCard

ClipCard is the configuration software exclusively for cards or keys.

ClipAudit

ClipAudit permits the export of audit data (test data, security) to various application programs.

User card

Standard card or standard key (1 kB each) for the closed cashless system.

Function key

The **programming key** (64 kB) serves for the individual configuration of a currenza clip reader. Data records for several currenza clip readers can be saved on the programming key.

The **cloning key** (1 kB) can be used to copy universally valid settings from a currenza clip reader to other currenza clip readers. The cloning key is a user key (user card) configured as a programming key.

The **Audit key** (64 kB) serves to collect accounting data of currenza clip readers.

Additional peripheral devices

The cashless system installed by means of currenza clip readers can, if required, be extended by additional peripheral devices:

- coin validator
  – G-40
  – G-13: 16-pin plug, G-40 compatible
- bill validator with parallel interface
- coin changer

2 Safety instructions

Before starting up the device for the first time, please read these instructions and in particular the safety instructions carefully at least once. This is to ensure you have understood the contents of this manual and how the currenza clip reader works.

Proper use

The currenza clip reader is designed for cashless payment of goods and/or services in closed systems. Use the currenza clip reader exclusively for this purpose. The manufacturer can never be held liable for any damage or loss resulting from improper use of the currenza clip reader.

The currenza clip reader has been built in accordance with state-of-the-art standards and the recognized safety rules. Nevertheless, this equipment can constitute a source of danger. Please observe therefore the following safety instructions.

Protecting persons and equipment

The currenza clip reader may only be connected by a qualified electrician.

The PCB of the control unit is equipped with components which may be damaged by electrostatic discharge. Please observe the handling instructions for components exposed to the risk of electrostatic discharge.

Connect the correct voltage to the currenza clip reader (see label).

Pull the plug of the vending machine before installing or removing the currenza clip reader.

Contact NRI if you want to modify the device beyond the scope of the modifications or attachments described here.

Keep water and other liquids away from the currenza clip reader.

Please dispose of the device correctly at the end of its service life.

We reserve the right to make technical modifications to the device which are not covered by these instructions!

3 Cards and keys

This chapter describes the various means of payment which you can use in a closed system equipped with currenza clip readers.

The currenza clip reader accepts various cards or keys for starting up and normal operation.

Fig. 1: Example user card

Fig. 2: Example user key

License card

You need a license card to start the configuration software ClipManager or ClipCard.

User cards

The user cards and user keys are identical in respect of their functions. In these instructions "user card" stands for the two means of payment.

The user cards are means of payment in the closed cashless system. The user cards are equipped with a MIFARE memory chip. The MIFARE memory chip is divided into 16 sectors, each protected against unauthorized reading and writing. The first sector is reserved for internal management. Thus 15 sectors are available for various applications (purses).

All user cards are blank on delivery. You can use the following configuration tools:

- ClipManager or
- ClipCard or
- a specially configured card reader

Function keys

Various function keys are optionally available for the currenza clip reader:

- Programming key
- Cloning key (with clear mark by the operator)
- Audit key

Programming key

The currenza clip reader is configured exclusively by the configuration software ClipManager.

You need the ClipManager to download the configuration data to the programming key.

Using the programming key it is possible to transport the configuration of several currenza clip readers. I. e. the currenza clip reader must not necessarily be connected to a PC for configuration. Each currenza clip reader needs an individual data record on the programming key. The vending machine numbers allow to match up the data records with the currenza clip readers.

The programming key memory capacity is 64 kB.

The programming key cannot be used as a user key.
The programming key and the audit key are functionally identical.

The configuration data for a currenza clip reader to be configured are downloaded to the programming key. When the programming key is inserted into the antenna holder of a reader, the reader checks whether there is a data record determined for it. If so, the data record is transferred. If not, the reader sends its settings to the programming key.

Cloning key (with clear mark)

Using the cloning key you can make universally valid settings on the currenza clip readers of a cashless system. One example is the allowance of discounts.

The cloning key is not a special key. The cloning key is a user key (user card) configured as a programming key.

You need the ClipManager to download the configuration data to the cloning key.

Data loss!
<u>All</u> configurations of the currenza clip reader will be overwritten by the cloning key.
Clearly mark each cloning key to avoid mix-ups with user keys (user cards).

You need different cloning keys for different configurations of currenza clip readers.

Audit key

You need ClipManager or ClipCard to set up the audit key for an application.

You need ClipManager or ClipAudit to load the collected data from the audit key to the PC.

Using the audit key you can read out the audit data of each currenza clip reader being part of the application. The audit data collected can be exported to various file formats. One example is the export to the XLS format. Using MS Excel, a spreadsheet, you can edit your audit data as desired.

4 Models

This chapter describes the various configuration levels of the currenza clip reader and the possible applications. The currenza clip reader is available in the following versions:

- currenza clip MDB
- currenza clip Multi Interface

currenza clip MDB

The basic model of the currenza clip reader supports exclusively the MDB protocol. The currenza clip reader works as slave.

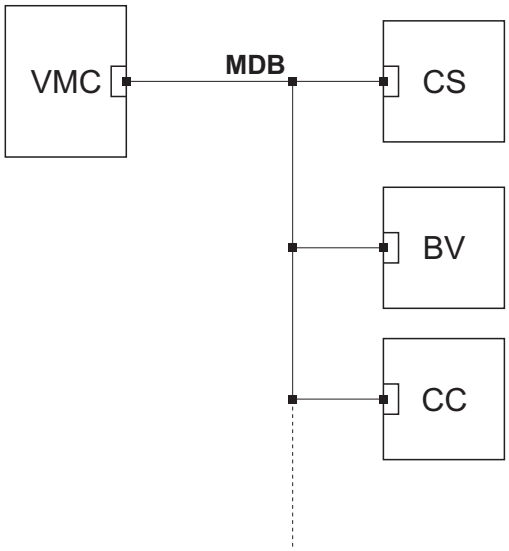


Fig. 3: Connection to a vending machine and peripheral devices (1)

The currenza clip reader (CS) is connected with the vending machine and further peripheral devices via a Y cable, see figure 3.

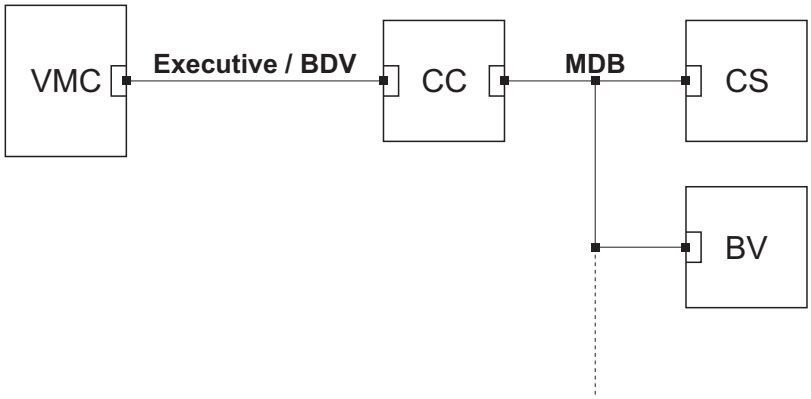


Fig. 4: Connection to a coin changer and peripheral devices

The application example in figure 4 shows the connection of the currenza clip reader (CS) via Y cable to a coin changer and further peripheral devices. There is no data exchange between the vending machine and the currenza clip reader.

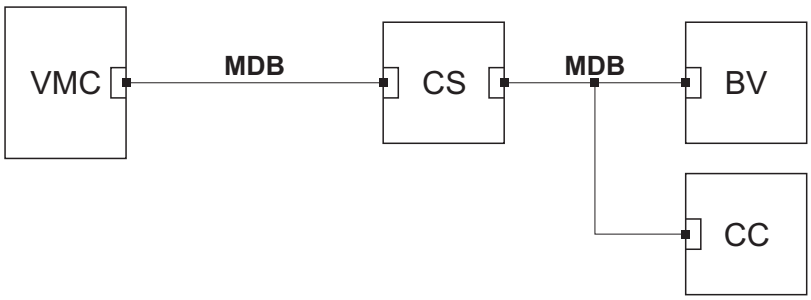


Fig. 5: Connection to a vending machine controller and peripheral devices (2)

The application example in figure 5 shows the connection of the currenza clip reader (CS) via master/slave cable to a vending machine controller and further peripheral devices.

currenza clip Multi Interface

The currenza clip Multi Interface version of the currenza clip reader is equipped with a multi-functional interface. The protocols are realized by means of various cables.

Vending machine	Peripheral equipment
MDB	Y cable or
	master / slave
Executive	executive or
	MDB master
BDV	executive or
	MDB master

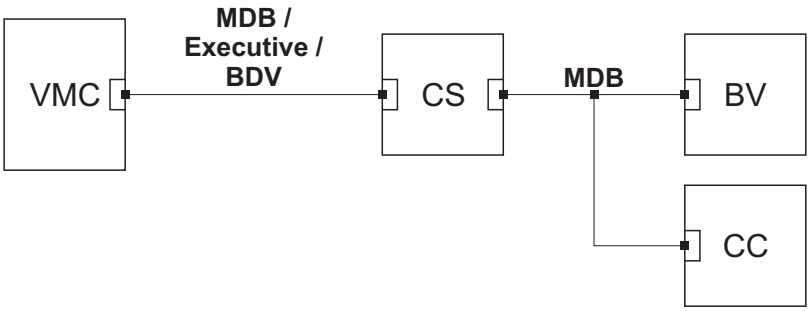


Fig. 6: Application example with currenza clip Multi Interface (CS)

5 Design and function

At first this chapter describes the design of the currenza clip reader. Then the functions of the currenza clip reader and the various applications resulting therefrom are described.

Design

The currenza clip reader is of modular design:

- control unit
- antenna

Control unit

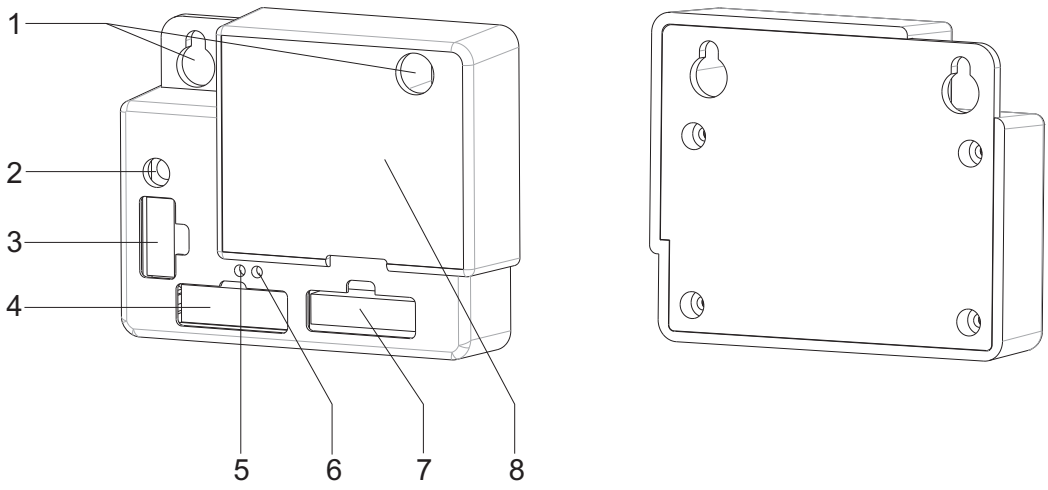


Fig. 7: Front view (on the left) and rear view (on the right) of the control unit

Item	Designation	Item	Designation
1	Fastening holes	5	Green LED
2	Jack J1 (antenna)	6	Red LED
3	Jack J2 (RS-232 PC)	7	Jack J4 (VMC or peripheral devices)
4	Jack J3 (coin validator)	8	Housing

LED	Function
Green	Active connection to configuration software
Red	No connection to configuration software

The green LED is on when an application is added to the user card by the configuration software.

Antenna

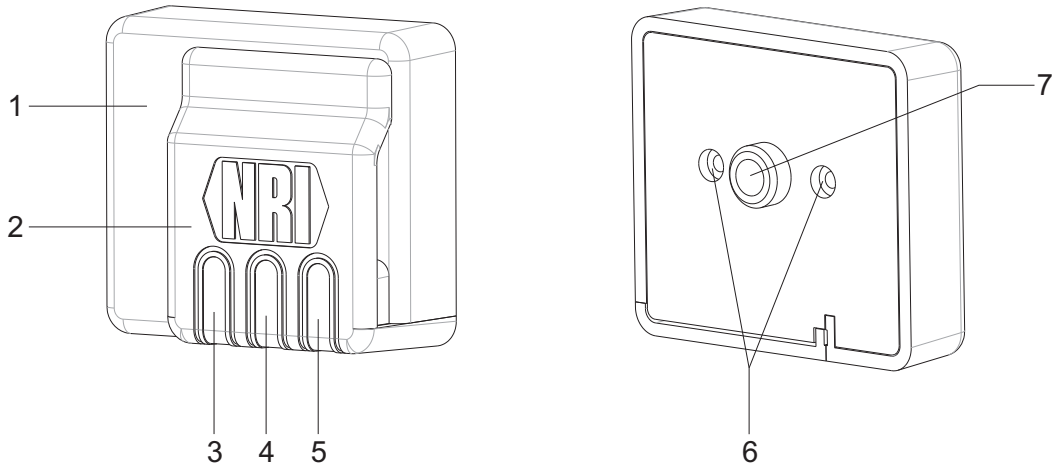


Fig. 8: Front view (on the left) and rear view (on the right) of the antenna

Item	Designation	Item	Designation
1	Housing	5	Blue LED
2	Holding fixture for cards / key	6	Fastening holes
3	Blue LED	7	Cable bushing
4	Blue LED		

Presently the three blue LEDs are connected in parallel. They indicate various operating states of the currenza clip reader.

Function

The currenza clip reader enables cashless payments for goods or services within closed systems, e. g. within companies. User cards serve as means of payment. The user cards can be charged in different ways. This depends on:

- whether you plan an exclusively cashless system or a mixed system.
- whether you permit charging of the cards also on the vending machines or not.

Cashless systems

In cashless system no coins / bills (cash) are used for payment, but an amount of money is available electronically on a chip.

It is advisable for cashless systems to configure one currenza clip reader as reloading station for user cards. As an alternative a reader can be connected to a cash register.

Take care of easy accessibility of this reloading station for the users.

Mixed systems

In mixed systems cash and cashless payments can be used optionally For mixed systems the following options of reloading user cards are available:

- central reloading
  - reloading station
  - cash register with reader connected
- local reloading
  - bill validator
  - coin validator
  - coin changer

When a mixed system is installed it is useful to install an NRI coin changer and a currenza clip reader in parallel.

6 Installation

This chapter contains the information required for the installation of the currenza clip reader:

- dimensions of the antenna
- work steps for installing the antenna
- dimensions of the control unit
- work steps for installing the antenna

Antenna

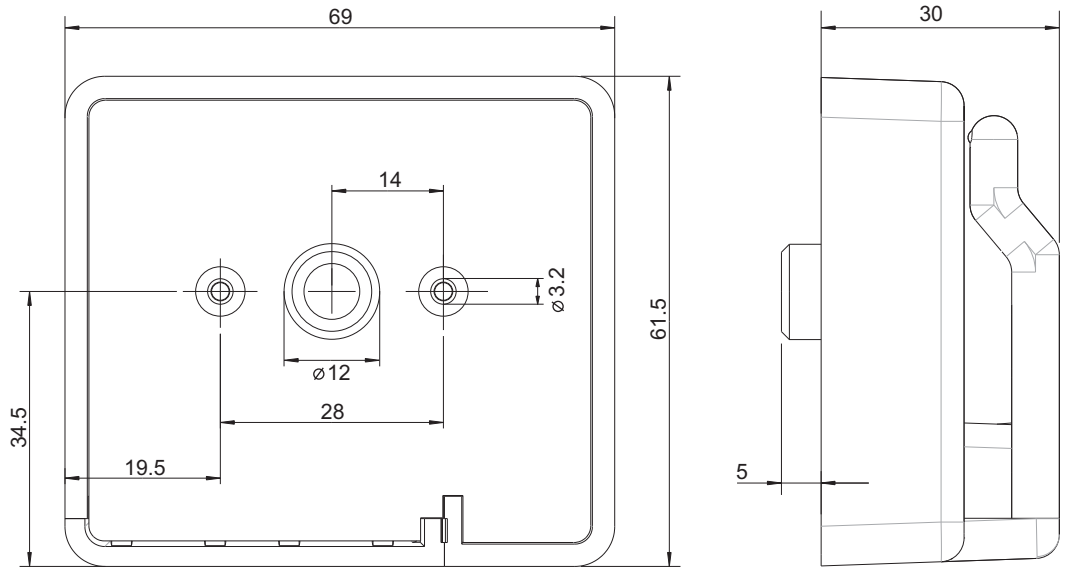


Fig. 9: Dimensions of the antenna

- drill hole for cable bushing: 12.5mm
- drill hole for fastening: 3.2mm

If you need a drill jig for mounting the antenna, please refer to Chap. 12 "Technical data".

The antenna is installed in the front panel of the vending machine (device).

1. Drill the two fastening holes.
2. Drill the hole for the cable bushing.
3. Feed the antenna cable attached to the antenna through the cable bushing.
4. Fasten the antenna using the enclosed screws.

Control unit

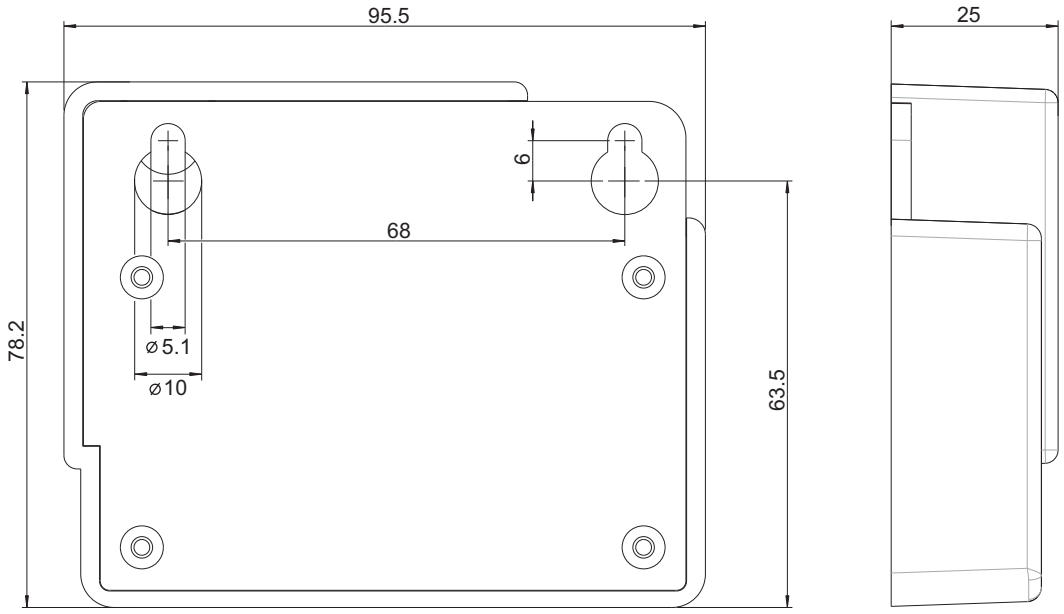


Fig. 10: Dimensions of the control unit

Take into account that the coaxial cable of the antenna is 1 m long when selecting the location for the control unit.

Two options are available for fastening the control unit:

- pressure-sensitive reclosable fastener
- screws

Installation with pressure-sensitive reclosable fastener

The scope of delivery of the currenza clip reader includes a pressure-sensitive reclosable fastener, see figure below:

Fig. 11: Front and rear view of the pressure-sensitive Dual Lock

The pressure-sensitive reclosable fastener consists of two identical parts.

1. Take the two parts of the pressure-sensitive reclosable fastener and put them on top of each other in such a way that:
   – the rear sides are outside.
   – all outside edges are flush.
2. Press the two parts of the pressure-sensitive reclosable fastener firmly together.

Closing of the connection can be clearly heard.

3. Remove the protective film from one rear side.
4. Press this side firmly onto the rear side of the control unit.
5. Remove the protective film from the second side of the fastener.
6. Position the control unit in a suitable place in the vending machine (device) and press it firmly against the panel on the inside.

When selecting the location, take the maximum distance from the antenna determined by the length of the coaxial cable (1 m) into account.

Installation with screws

The housing of the control unit is provided with two fastening holes.

The dimensions of the fastening holes are in compliance with those of the NRI coin changers.

Avoid heavy knocks against the control unit housing. Do not let the control unit drop.
Do not touch the pins of the connectors with your bare hands.

1. Drill two holes into the holder determined for the control unit.
2. Turn in two screws.
3. Hang up the control unit.
4. Tighten the screws lightly.

7 Connection

1. Switch the vending machine off.
2. Plug the coaxial connector attached to the end of the coaxial antenna cable into the jack J1 of the control unit.
3. Connect the control unit (jack J4) with the vending machine control and further peripheral devices, if any.
4. Switch the vending machine on.

8 Start-up

This chapter describes all work steps which are required to

- configure the currenza clip reader.
- configure the user cards.

For start-up you need

- the currenza clip reader(s)
- a serial data cable (or the connection between PC and control unit of the currenza clip reader)
- a vending machine connection cable (the type to be used depends on the data protocol)
- a power cable

When the WinSPT simulator is used, no separate power cable is necessary. In this case power supply is effected via the data bus.

- a PC with:
  – operating system MS Windows® 2000 and higher
  – RS-232 port (9-pin)

  Use a USB/RS-232 adapter, if your PC has no RS-232 port.

  – installed configuration software ClipManager and the corresponding license card

  In some translations of this manual the screenshots of this chapter are not shown in the national language but in English, even if the national language can be selected in the program (see section "Language setting" in this chapter).

- user cards
- programming key and/or cloning key, if applicable

Configuration tools

Various configuration tools are available for the currenza clip reader:

- ClipManager
- ClipCard
- programming key (see chapter 3 "Cards and keys“)
- cloning key (see chapter 3 "Cards and keys“)

The programs ClipManager and ClipCard work only in combination with a license card.

You can install the programs on several PCs. But you can use them only with a license card.

These operating instructions describe configuration of the currenza clip reader with the ClipManager.

ClipManager

ClipManager can be used to:

- configure the currenza clip reader
- edit the various cards / keys
- edit the audit data

Start screen

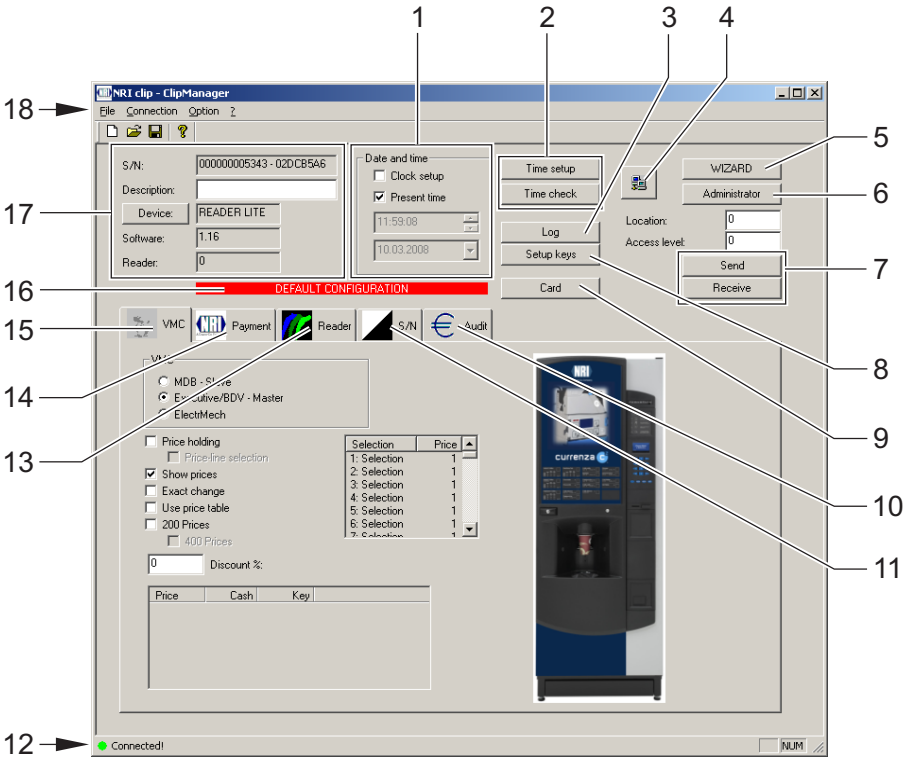
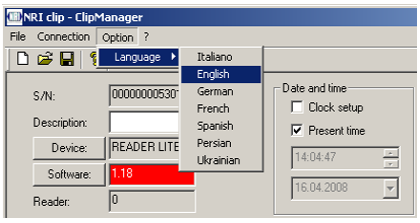


Fig. 12: ClipManager start screen

Item	Designation	Item	Designation
1	Setup date and time	10	Tab: Audit parameters
2	Check / setup date and time of reader	11	Tab: Configuration Acceptance of user cards
3	Open log file (log data)	12	Connection status
4	Establish connection to reader	13	Tab: Reader parameters
5	WIZARD	14	Tab: Interfaces for peripheral devices
6	Security settings f. reader access	15	Tab: VMC interface protocol
7	Data exchange with reader	16	Alert field
8	Open list of user cards	17	Basic data of reader connected
9	Card management	18	Tool list

Language setting

Set the language, if necessary.



1 Open the **Option** menu.

2 Press **Language** and select the desired language from the submenu.

Administration code

The administration code is a 9-digit numerical character string to be defined uniquely by the operator for every closed system with currenza clip readers.

In the delivery state all currenza clip readers have the administration code „0“.

The administration code is security-relevant!
A carefully selected administration code prevents:

– **unauthorized persons from accessing the configuration of your currenza clip readers.**

– **other operators' chip cards of from being accepted**

- Change the administration code of the currenza clip reader during the initialization process.
- Select numerical character strings which are not easy to determine.
- Keep your administration codes in a safe place.
- Never forget an administration code.

Vending machine number

The vending machine number is an 8-digit number which can be freely selected by the operator. The vending machine number serves to identify a currenza clip reader within the closed system.

All currenza clip readers and all cards / keys are provided with an 8-digit hexadecimal serial number. This number cannot be changed.

Communication protocol

MDB is set by default as standard protocol of the currenza clip reader.

If you want to use any other protocol but MDB for data transmission within your closed system, you must make the corresponding setting.

Discount settings

You can assign general discounts (on the currenza clip reader) and individual discounts (on the respective cards or keys).

General and individual discounts are granted in the system in succession.

Check the discount settings prior to installation.

Preparation of installation

Prior to installing a currenza clip reader you must:

1. change the administration code
2. set the vending machine number
3. set the desired communication protocol
4. check the discount settings

You need the ClipManager configuration software to perform the steps 1 to 4.

Connecting the currenza clip reader

1. Connect antenna and control unit.
   Plug the coaxial connector of the antenna cable into the jack J1 of the control unit.
2. Connect the currenza clip reader to the power supply. Use the power supply cable included in the delivery. Plug the 16-pin connector into the jack J4 of the control unit.
3. Connect the currenza clip reader with your PC. Use the serial cable included in the delivery. Plug the 10-pin connector into the jack J2 of the control unit.

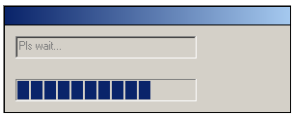
Use a USB/RS-232 adapter, if your PC has no RS-232 port.

Configuring the currenza clip reader

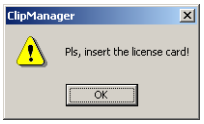
The following section describes the work steps which you must perform to start up the currenza clip reader.

The detailed description of all functions available is contained in the instruction manual for the configuration software.

1 Start the ClipManager. Run the program *ClipManager.exe* for this purpose.



– If the program cannot establish a connection to the currenza clip reader, the error message: „**Not connected**“ is displayed. Acknowledge the error message by pressing the **OK** button. Check the setting of your serial interface on your PC.
– If you have not inserted the license card into the holder of the antenna, you will be prompted to do so:



2 If necessary, insert the license card into the holder of the antenna. Acknowledge this by pressing the **OK** button.

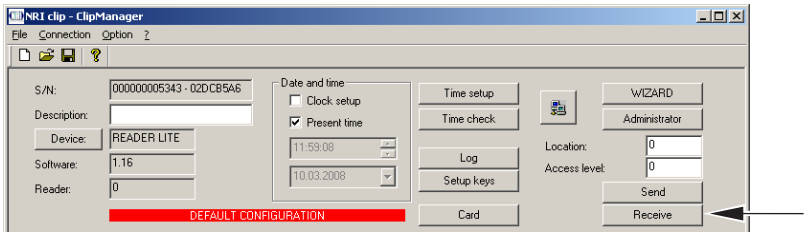
If the program does not recognize a valid license card, an error message will be output:

3 Acknowledge the error message, if any, by pressing the **OK** button. The ClipManager is not started. Begin again with step 1 to start the ClipManager.

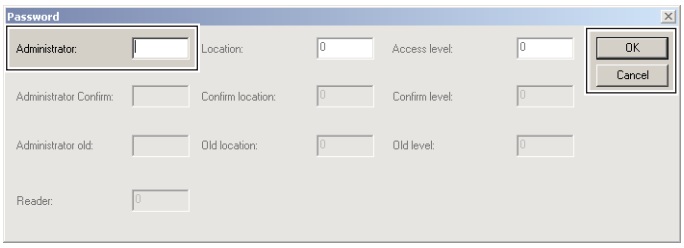
After successful login the ClipManager is started.

The settings displayed in the start screen of the ClipManager are not up to date! See alert: „Default Configuration“.
The settings saved last are displayed.

4 Read out the current settings of the currenza clip reader. Press the **Receive** button in the start screen.

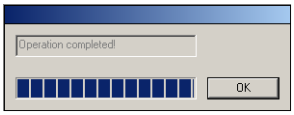


The following screen appears:



In the delivery state all currenza clip readers have the administration code "0“.

5 Enter the administration code. Acknowledge the entry by pressing the **OK** button. After readout of the currenza clip reader the following display appears:



6 Press the **OK** button.

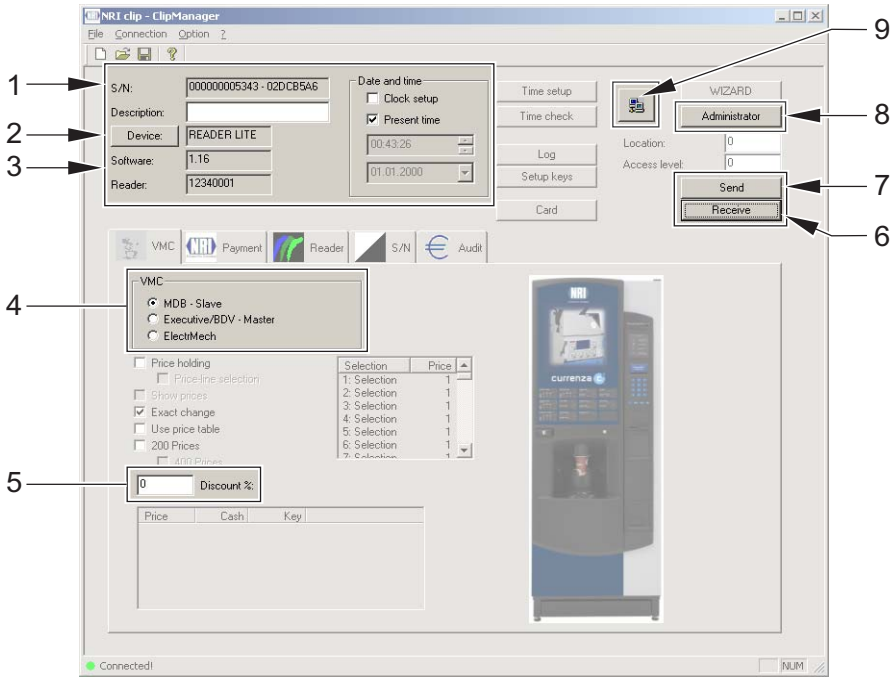


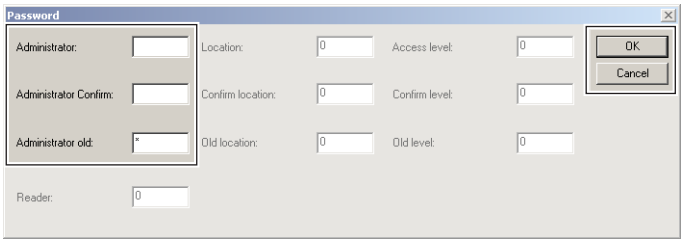
Fig. 13: ClipManager - Making the basic settings on the currenza clip reader

Item	Designation	Item	Designation
1	Serial number	6	Read out device setting
2	Device type (is selected automatically)	7	Update device setting (in device)
3	Device firmware version	8	Administration (change administration code, vending machine number, ...)
4	Protocol to vending machine (select)	9	Establish connection to reader
5	Discount (setup)		

In the left upper section the general data of the currenza clip reader connected is displayed:

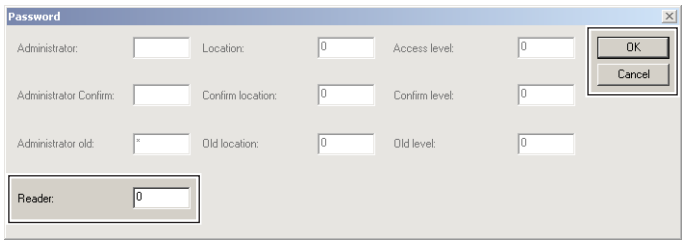
- **S / N**
  The 12-digit serial number is assigned during the manufacturing process. The subsequent hexadecimal number combination is a checksum. It is generated by the installed firmware.
- **Device**
  The device type connected is displayed in the field to the right of the **Device** button.
- **Software**
  The firmware version installed on the connected device is displayed in the adjoining field.

7 Change the administration code. – Press the **Adminstrator** button. The following screen appears:



– Enter the new administration code in the upper input field.
– Repeat the entry in the central input field.
– Acknowledge termination by pressing the **OK** button.

8 Set the vending machine number. – Press the **Adminstrator** button. The following screen appears:

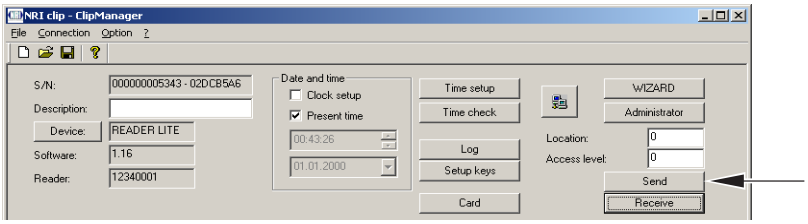


– Enter the vending machine number (**device number**) in the input field.
– Acknowledge termination by pressing the **OK** button.

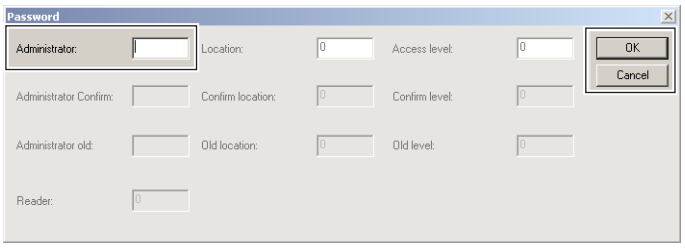
9 Set the communication protocol between the currenza clip reader and the vending machine (13/4). You can choose between:
– **MDB - Slave** (default setting)
– **Executive / BDV - Master**
– **ElectrMech**

10 Check the discount settings (13/5).

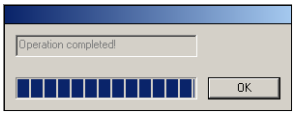
11 Update the device settings.



– Press the **Send** button in the start screen. The following screen appears:



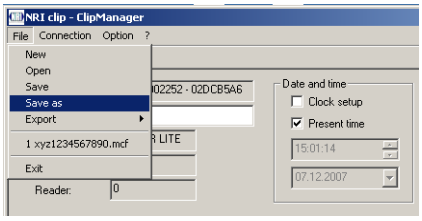
– Enter the administration code. Acknowledge the entry by pressing the **OK** button. The following screen appears after transmission of the data to the currenza clip reader:



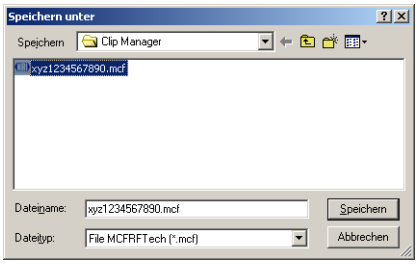
– Press the **OK** button.

You can save the current settings of the ClipManager and use them e.g. for the configuration of further currenza clip readers.

12 Select the command **Save as** from the **File** menu.



The following screen appears:



13 Assign a file name. Save the data in a directory of your choice.

Configuration example

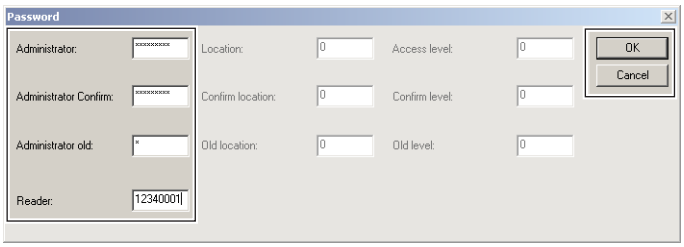
- Administration code: 123456789
- Vending machine number: 12340001
- Communication protocol: MDB - Slave
- Discount setting: 0 %

1 Connect the currenza clip reader to the PC

2 Start ClipManager

3 Read out current settings of currenza clip reader

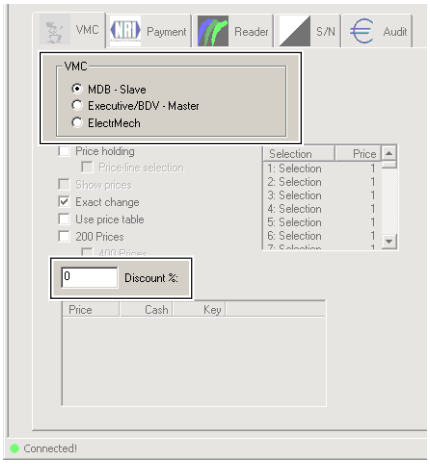
4 Press Administrator button and enter the new administration code and the new vending machine number (**Reader**):



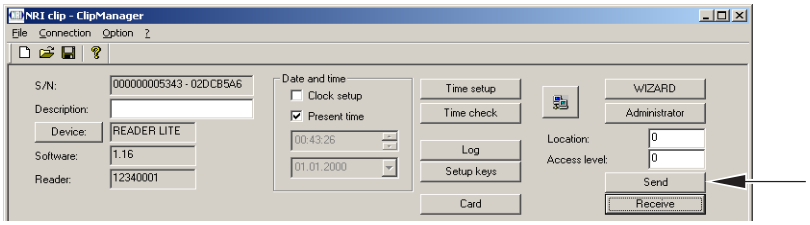
5 Press **OK** button

The new administration code and the new vending machine number are transmitted to the currenza clip reader.

6 Set communication protocol and discount:



7 Send settings to currenza clip reader



WIZARD

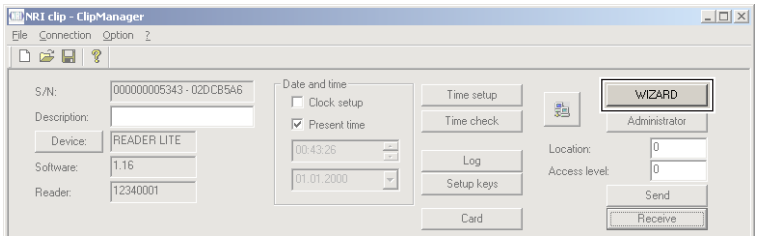
You can also use the WIZARD for setting up the standard configurations:

1 Connect the currenza clip reader to the PC

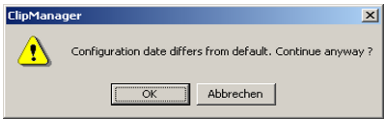
2 Start ClipManager

3 Read out current settings of currenza clip reader

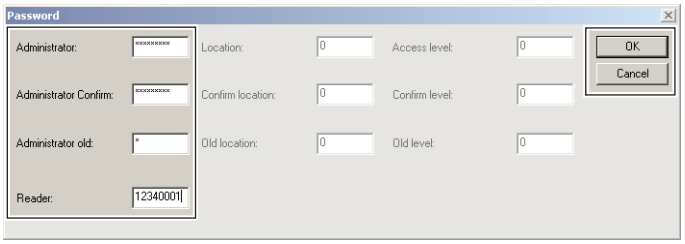
4 Press the **WIZARD** button.



If applicable, you will be warned that you are about to overwrite an existing configuration:

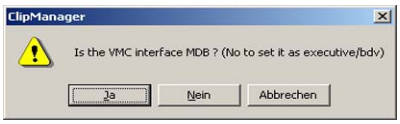


5 Enter the new Administration code (Example: 123456789) and the new Vending machine number (Example: 12340001):

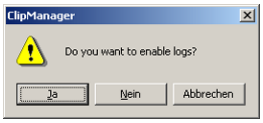


6 Press the OK button.

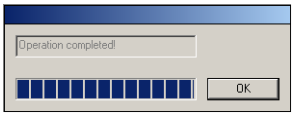
7 Select the communication protocol:



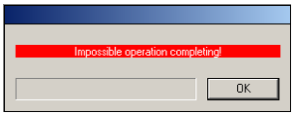
8 Activate the log function if needed:



After successful configuration the WIZARD displays a corresponding report message window:



In case of an unsuccessful configuration the WIZARD displays an error report message window:



User card configuration

The following section describes the work steps which you must perform to configure the user cards.

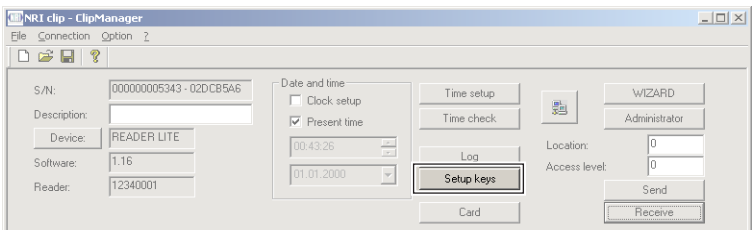
You have two types of configuration software at your disposition:

- ClipManager
- ClipCard

Risk of double assignment of user numbers!
Always use the same PC to configure your user cards. By doing so you make sure that all user cards are listed in the same data base.

In the description below the ClipManager is the configuration software. The user card is to be initialized via the currenza clip reader:

1. If necessary, perform all steps of the section "Connecting the currenza clip reader“.
2. Start the ClipManager. Run the program *ClipManager.exe* for this purpose. See also steps 1 to 3 in the section "currenza clip reader configuration" of this chapter.
3. Press the button **Setup keys.**



All user cards configured for the existing cashless system are displayed in the list which appears. When a new system is created the list is empty:

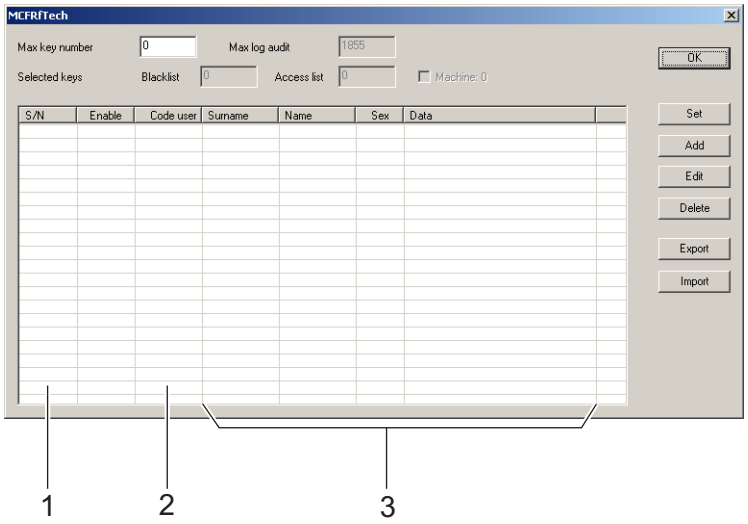
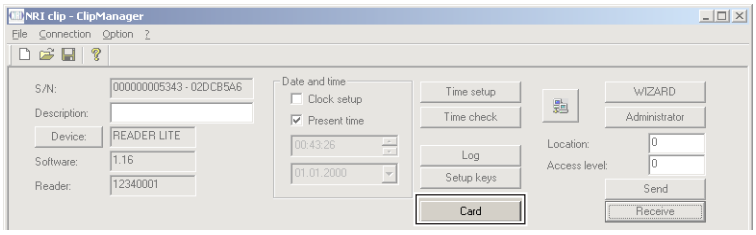


Fig. 14: List of user cards

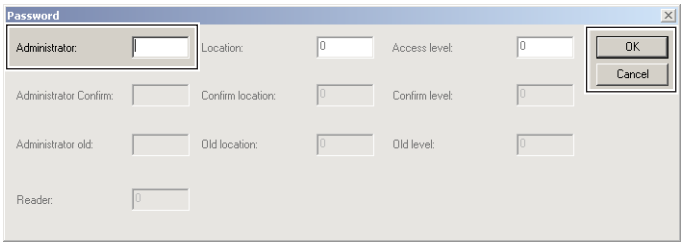
Item	Designation	Item	Designation
1	Serial number	3	Additional identification criteria
2	User number		

4 Get a picture of the user numbers already assigned. Close the window by pressing the **OK** button.

5 Press the **Card** button.



6 Enter the administration code. Acknowledge the entry by pressing the **OK** button.



Now you are allowed to access the card management.

Card management

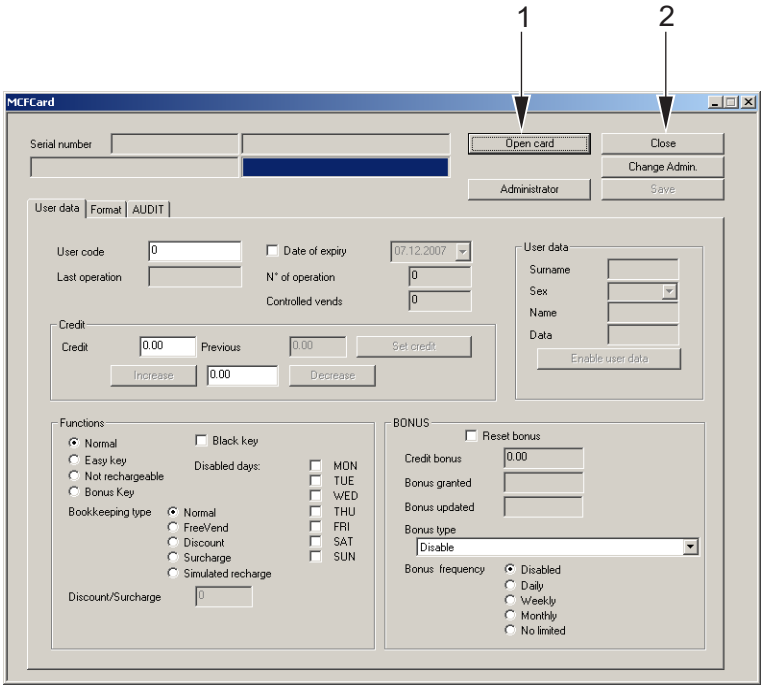


Fig. 15: Card management

Item	Designation
1	Open User Card (readout)
2	Terminate card management

1 Insert the user card into the antenna holder. Press the button **Open card**. The user card is checked and the result displayed.

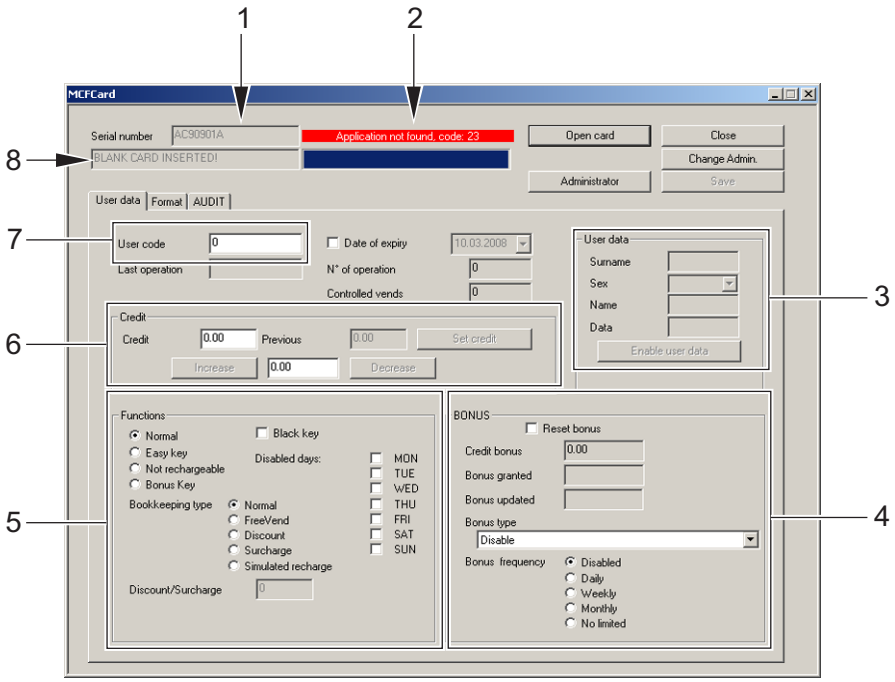


Fig. 16: Tab **User data**

Item	Designation	Item	Designation
1	Serial number	5	Set card functions
2	Test result (messages, errors)	6	Credit assignment
3	User data	7	Display / Entry of user numbers
4	Set bonus	8	Status display (of currenza clip reader)

Figure above: The user card with the serial number AC90901A has been recognized. The check result "Application not found“ shows that no valid application could be found on the user card..

Error messages are highlighted red in the check results field.

2 Change to the tab **Format**.

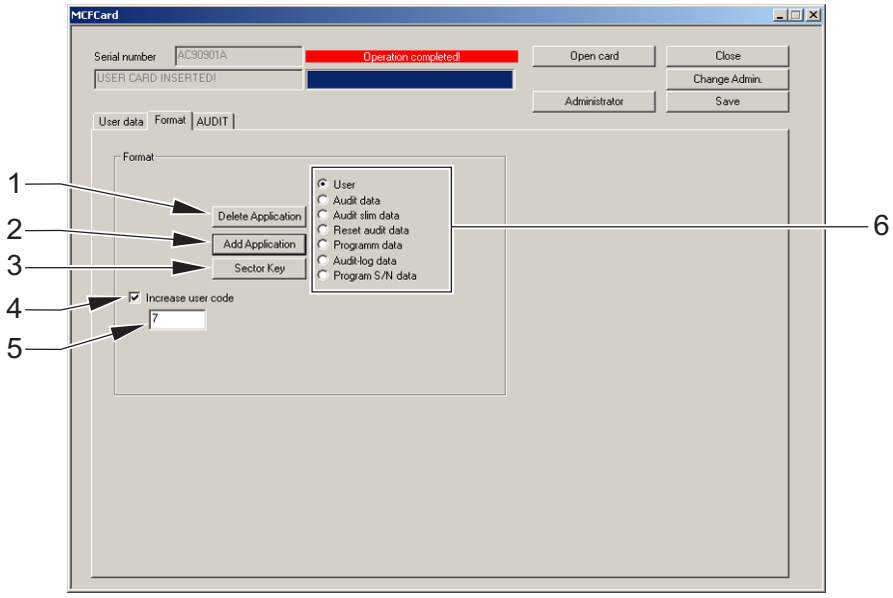


Fig. 17: Tab **Format**

Item	Designation	Item	Designation
1	Delete purse	4	Select automatic / manual increment of user numbers
2	Add purse	5	User number (assigned automatically)
3	Display sector assignment	6	Data type of user card

You can view the sectors assigned on the user card:

3 Press the button **Sector Key** (17/3).

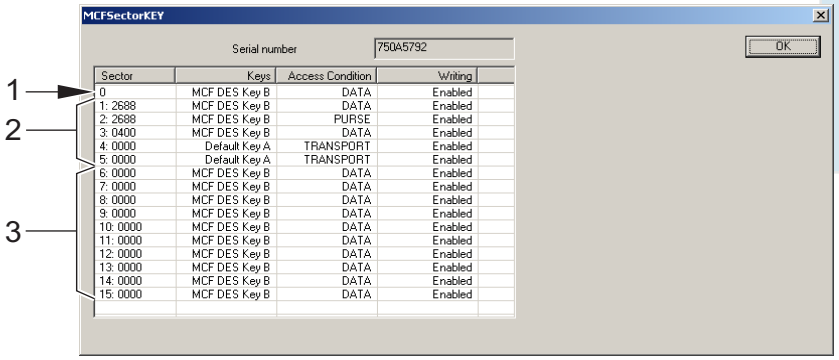


Fig. 18: Display of the sector keys

Item	Designation	Item	Designation
1	Reserved for internal data	3	Free sectors
2	Occupied sectors		

Assigning user numbers

You must determine a separate user number for each user card. For example the personnel numbers of the staff could be used as user numbers within a company.

If you do not want to assign the user numbers individually, you can have them assigned automatically. In this case an internal counter is increased by the value "1" whenever a new user card is configured.

Risk of double assignment of user numbers!
Always use the same PC to configure your user cards. By doing so you make sure that all user cards are listed in the same data base.

4 Activate the field **Increase user code** (17/4) to increment the user numbers automatically by your configuration tool - tickmark set. Deactivate the field **Increase user code** (17/4) to assign the user numbers individually - tickmark not set.

5 Change to the tab **User data**. Enter the user number in the field **User code**.

For automatic assignment: The next assignable user number is displayed, see Figure 17/5.

6 If necessary, enter additional identification criteria in the fields **User data** (16/3).

7 Select the desired functions for the user card in the field **Functions** (16/5).

8 Select the desired bonus in the field **Bonus** (16/4).

9 Change to the tab **Format**. Transfer the application to the user card by pressing the button **Add application**.

9 Operation

This chapter describes how the currenza clip reader:

- accepts cards and keys
- accepts cards and keys
- can be checked for functioning

Acceptance of cards / keys

Insert the card or key laterally into the holder of the antenna, see figure below.

Fig. 19: User key in antenna holder

The three LEDs arranged in the bottom part of the antenna holder indicate the operating status of the currenza clip reader with their flashing frequency.

Presently the three LEDs are connected in parallel.

The chip data is read out.

Status of currenza clip reader	LED on card holder
Stand by	Flashing: 1.5 s on and 0.5 s off
User card recognized	Permanent light
	Flashing, if card is not accepted (e. g. wrong administration code): 1 s on and 1 s off
Programming key recognized	Permanent light
	Flashing when data transmission terminated: 1 s on and 4 s off, in case of successful data transmission 1 s on and 1 s off, in case of faulty data transmission
Audit key recognized	Permanent light
	Flashing when data transmission terminated: 1 s on and 4 s off, in case of successful data transmission 1 s on and 1 s off, in case of faulty data transmission

The available credit is displayed in the external numerical display on the vending machine.

Returning cards / keys

Remove the card or the key from the holder of the antenna.

10 End of service life

The control unit and the antenna contain electronic boards. Dispose of the electronic waste in accordance with the legal regulations.

11 Faults

This chapter describes how you can detect and remedy faults occurring in the operation of the currenza clip reader.

Administration code is not available

The memory area on the cards / keys belonging to the cashless system concerned can no longer be used. The existing credits are lost.

If available you can evaluate the log files, determine user credits still existing and transfer these to new cards / keys.

The currenza clip readers concerned can be made accessible again, which requires, however, some work. For this purpose you must determine the following data:

- serial numbers of all currenza clip readers concerned
- the checksums generated internally

You can determine this data by means of the configuration software without knowing the administration code.

Send this data to the NRI service department. NRI will send you a reset code. The currenza clip readers can be reset to the delivery status by means of the reset code. The administration code is "0“.

You must reconfigure the currenza clip readers.

Program messages

The ClipManager (as well as ClipCard and ClipAudit) displays via message windows:

- the progress of command execution

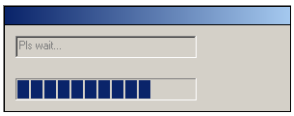


Fig. 20: Message after program start: „Pls wait...“

- the result of program execution

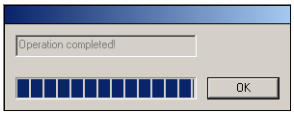


Fig. 21: Message after successful program execution: „Operation completed!“

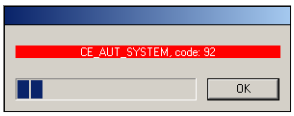


Fig. 22: Example of an error message: "CE_AUT_SYSTEM, code: 92“

12 Technical data

Supply voltage	MDB and BDV: 15V to 42.5V DC Executive: 15V to 42.5V AC	
Temperature range	-20°C to +50°C	
Temperature change	Max. 0.2°C/min.	
Rel. humidity	Up to 90%	
Condensation	Not permitted	
Interface PC	RS-232	
Interface VMC	currenza clip MDB: currenza clip Multi Interface:	MDB Slave MDB Executive BDV
Cards/Keys	User cards or user keys Programming, audit keys Cloning key	
Dimensions Antenna	Height: 61.5mm Width: 69.0mm Depth: 30.0mm (without cable protection) 30.5mm (with cable protection) (For drill jig, see next page)	
Antenna cable	Length: approx. 100cm	
Dimensions Control unit	Height: 78.2mm Width: 95.5mm Depth: 25.0mm	
Mounting position	horizontal/vertical	
Conformity marking	CE (see section "CE conformity marking" in this chapter)	

Drill jig for antenna

Ø for drill holes:

- cable bushing: 12.5mm
- fixing bolt: 3.2mm

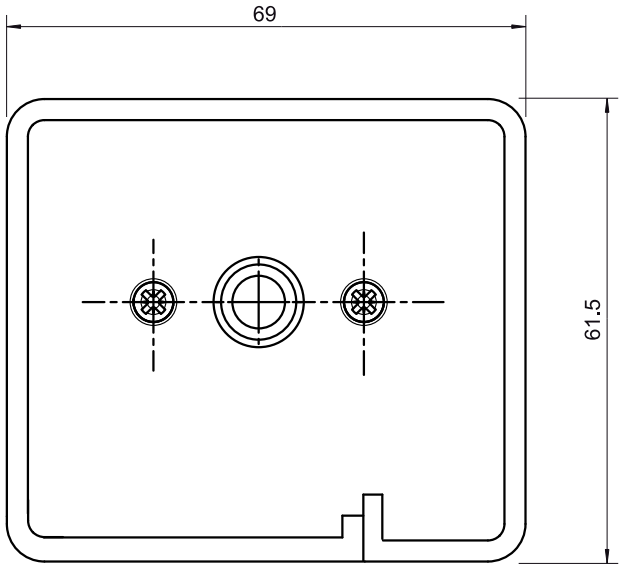


Fig. 23: Drill jig for antenna

If necessary, print the jig (1:1), cut it out and for security purposes, compare its dimensions with the dimensions of the antenna before mounting the antenna. If the jig dimensions do not agree with the dimensions of the antenna, it could be due to PC system or printer driver problems.

CE Conformity Marking

The CE marking (CE = Communautés Européennes) confirms that our products comply with specified basic requirements of the applicable directives. The CE marking is not a quality assurance certificate in terms of the quality expected from the manufacturer, but only in terms of the quality demanded by law. It is a purely administrative certificate and is intended exclusively for the surveillance authorities as proof of product conformity with the directives, and not for the customer or final consumer.

The directive(s) applied is (are) stated in the declaration of conformity. The manufacturer must keep this declaration available for the surveillance authorities only (for a minimum period of 10 years after the last product has been brought into circulation). We can, however, provide copies of the respective conformity declaration for our customers on request.

The following directives and their subsequent changes can be partially applied to our devices:

1. The EMC directive (89/336/EEC)
   for devices causing or subject to electromagnetic interference.
2. The Low Voltage Directive (73/23/EEC)
   for electrical equipment designed for use with a nominal voltage of 50–1000 V AC and 75–1500 V DC.
3. The CE Marking Directive (93/68/EEC)
   Modification directive regarding application and use of the CE marking.
4. The Directive for Radio & Telecommunications Terminal Equipment (1999/5/EC).

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Glossary

BDV

Bundesverband der **D**eutschen **V**ending-Automaten-wirtschaft e. V. The BDV protocol (a further development of the → *Simplex V* protocol) is the internal vending machine communication protocol of the above organisation. This protocol connects the VMC, coin changer, bill validator, cashless payment system and the accounting unit, as far as available.

BV

Bill **V**alidator

Cashless System

In the cashless system no coins / bills (cash) are used for payment, but an amount of money is electronically available on a chip. The chip is charged with money at reloading stations. A distinction is made between the public cashless payment system and the closed cashless payment system.

Public cashless payment system: banks and savings banks are the operators. The → *electronic purse* serves as a means of payment. The electronic purse can be used at all acceptance points within a country. The payment system is country-specific. When the electronic purse is charged, the amount is debited to the card owner's bank account and credited to an electronic purse account. The account balance is recorded on the chip. When payment is made with the electronic purse, the amount is transferred from the electronic purse account to the account of the acceptance point.

Closed cashless payment system: closed cashless systems are operated by private operators. Besides goods from vending machines, services can be purchased via payment stations. Chip cards serve as a means of payment. The chip cards are issued and controlled by the operator. Reloading stations are part of the closed cashless payment system.

CC

Coin **C**hanger

CS

→ ***C**ashless **S**ystem*