Technical Documentation

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Coin changer currenza C2®

Manual for configuration

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1 About this manual

This manual describes how to set the c² concerning:

- Language and display (Presettings)
- Coin cassette filling and emptying
- Prices and vending modes
- Cash acceptance
- Change payout
- Peripherals
- Audit

This manual does not describe the whole functional range of the coin changer currenza c² or HENRI setting module. In order to be able to use the whole functional range of the devices safely as well as to configure all possible functions, all manuals and short reference guides for the NRI changer currenza c² and HENRI setting module must be read carefully.

Text conventions

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

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

Notes, which you must observe in order to protect the environment.

Special notes, which are to facilitate the use of the devices.

At the beginning of a chapter you will find a short "guide", which summarises the content of the chapter.

1 2 3 ... Requests to perform an action are numbered in another typeface and, if possible, listed in a table.

Service DISPLAY TEXTS are set in small capitals.

BUTTONS and **MENU ITEMS** are shown in bold capitals.

Additional technical documentation

Apart from the manual you already have, there is further documentation for the currenza c² and HENRI setting module, e.g. about service work and technical data. All product descriptions are available in a compressed PDF format at www.nri24.com (→ Download).

2 General information

In order to keep the manual as short as possible, this chapter provides you with all general information, which will not be repeated in the following chapters (e.g., connecting the HENRI setting module).

The vending machine interfaces

This manual refers to the configuration of all currenza c² models. The models have different configuration options, e.g., due to different vending machine interfaces.

The chapter title supplement put in brackets limits a certain function or setting for one or several interfaces.

The user interfaces

Beyond that the currenza c² models differ in their user interface. The c² blue is the only model with a user interface allowing a direct configuration at the coin changer. All other models (green, orange, white) must be connected to the HENRI setting module for configuration, that cannot be carried out using the switching block on the rear of the coin validator.

When to use the HENRI setting module?

- To configure the c² green/orange/white
- To configure a second currency/special token values in the c² blue/green/orange/white
- As data transfer unit for e.g. current configuration and firmware files, which are supposed to be loaded into a c² blue/green/orange/white

Connecting HENRI

In the HENRI short reference guide you learn how to connect the HENRI setting module to the currenza c² with full details. At this point you will only find a short description for on-site configurations.

Plug the RJ-45 connector of the HENRI connecting cable into the top right socket of the coin changer.

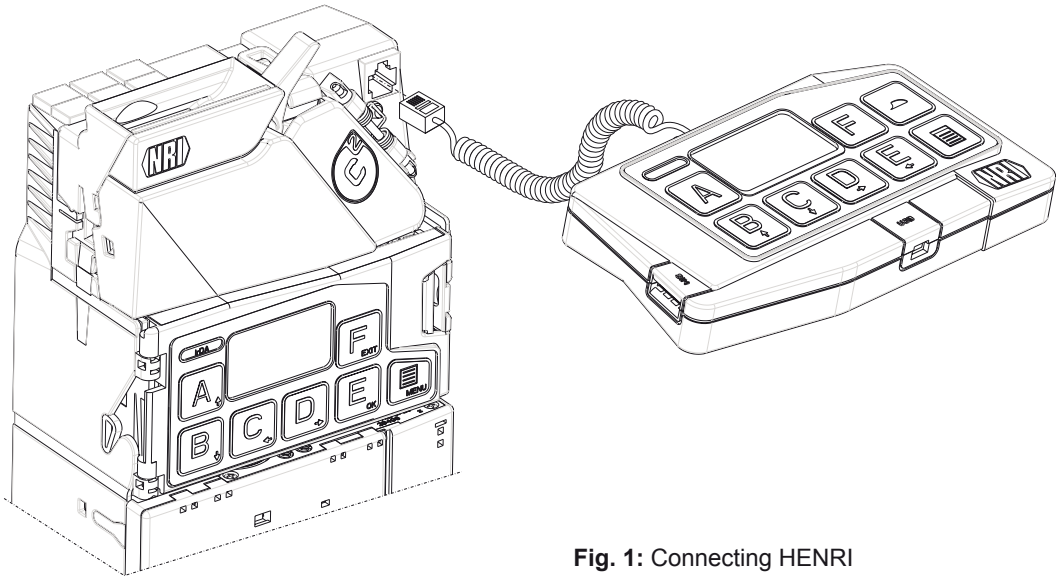


Fig. 1: Connecting HENRI

HENRI is powered by the vending machine, switches over to the c² mode automatically and shows the (vending machine) display in normal operating mode, e.g., the current change stock.

In the following chapters it has been assumed that HENRI needs to be connected to the coin changers c² green/orange/white for configuration and shall not be explained again.

3 Presettings

This chapter describes settings which are not concerned with the coin changer operation itself but must be carried out once before configuring the coin changer, if not set at NRI:

- Menu language
- Display contrast
- Display message

Selecting menu language

The c² supports the following languages:

- English
- German
- French (option)
- Italian (option)
- Spanish (option)

and is provided with three installed languages. The third language is customised. If required, the coin changer may also be provided with other languages than listed above.

To select the menu language (also language for audit receipts):

Quick approach:

`= Main menu > E = Settings > Other settings > Language`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	1 x	You want to set the menu LANGUAGE
6	E	1 x	Now you can set the LANGUAGE
7	A/B	until language desired	You want to set this language
8	E	1 x	You lock the language selected in memory
9		1 x/2 x	You return to main menu/operating mode

Setting display contrast (only c² blue)

The contrast of the c² blue display has a default setting of "46".

To change the contrast:

Quick approach:

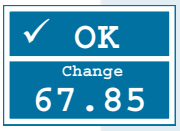
`= Main menu > E = Settings > Other settings > Display contrast`

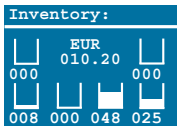
	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Display contrast`	You want to set the DISPLAY CONTRAST
6	E	1 x	Now you can set the CONTRAST
7	D / C	until required digit	You highlight the digit to be changed
8	A / B	until required value	This value is to be set (the contrast is changing with the value set)
9	*Please repeat steps 7 and 8 to set the second digit of the contrast value, if necessary*		
10	E	1 x	You lock the set value in memory. The display has the new contrast
11		1 x/2 x	You return to main menu/operating mode

Specifying display message for operating mode (only c² blue)

During normal operating mode the currenza c² blue may display one of the following messages:

- Total CHANGE stock in coin cassette
- CASHBOX stock and total change stock in coin cassette by turns
- Total change stock and coin number per tube (INVENTORY)





To specify the display message:

Quick approach:

= Main menu > E = Settings > Other settings > Display

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until Other settings	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	until Display	You want to set the DISPLAY message for normal operating mode
6	E	1 x	Now you can select the DISPLAY message
7	A/B	until required message	You want to set this message
8	E	1 x	You lock the message selected in memory
9		1 x/2 x	You return to main menu/operating mode

4 Settings for filling and emptying cassette

This chapter describes useful or required settings for refilling and emptying the coin cassette:

- Configuring float level
- Setting tube counters to float-level automatically
- Correcting tube counters according to filling level sensors
- Resetting tube counters before refilling cassette
- Redirecting cash-box coins to return area
- Reporting inserted coins to machine (only c² MDB)
- Disabling/enabling inventory keys / disabling/enabling inventory keys using MDB/BDV protocol

Which settings should be done?

To enable the coin changer to register the exact coin number we recommend the following settings depending on the filling method used:

Settings for tube refilling by coin insertion

If the cassette is refilled by inserting the tube coins (and without emptying the cassette completely beforehand), see that the tube counters are not corrected according to the filling level sensors automatically, as the inserted coins will be registered exactly in the tube filling mode.

Whereas, if you remove and completely empty the cassette before inserting the tube coins, you should set the following in order to reset the tube counters before refilling the cassette:

- Resetting the tube counters before refilling the cassette
- Correcting tube counters according to filling level sensors automatically

Settings for direct refilling the removed cassette

If the cassette is removed to be directly refilled with a certain number of coins per tube, i.e. counted coins, the coin changer must be set as follows to ensure the exact registration of the coin number:

- Configuration of the coin number as float level per tube
- Automatic tube counter setting to float levels
- Deactivation of the automatic tube counter correction according to filling level sensors

If the cassette is removed to be directly refilled with any number of coins, the tube counters must be corrected according to filling level sensors automatically.

Configuring float levels

Should you wish the service personal to always fill or empty the tubes at a filling level of a certain and always identical coin number, it is advisable to configure so-called float levels.

First of all specify a number of coins for each change tube (see section "Specifying float level per tube" in this chapter).

If the tubes are refilled by inserting the tube coins with the cassette installed, you also have to activate the float-up function (see section "Activating/ deactivating float-up function" in this chapter).

If the coin cassette is going to be removed to be refilled directly, you have to activate the automatic tube counter programming (see section "Setting tube counters to float levels automatically" in this chapter).

Specifying float level per tube

To specify the float levels:

Quick approach:

`= Main menu > E = Settings > Coin settings > Float level`

	How often?	Effect	Ziel
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Coin settings`	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Float level`	You want to enter submenu FLOAT LEVEL
6	E	1 x	You enter the submenu
7	A/B	until tube desired	You want to set a float level for this tube
8	E	1 x	Now you can set a float level for this tube
9	D/C	until required digit	You highlight the digit to be set
10	A/B	until required value	This value is to be set
11	*Please repeat steps 9 and 10 to set the other two digits of the float level, if necessary*		
12	E	1 x	You lock the set float level in memory
13	*Please repeat steps 7 to 12 to set the float levels of the other tubes, if necessary*		
14		1 x/2 x	You return to main menu/operating mode

Activating/deactivating float-up function

You should activate the float-up function if the cassette is refilled by inserting the tube coins on site. This makes sure that all tube coins being inserted after the float level has been reached will be directed to the return area.

If the float-up function is activated but no float level configured (float level for the single tubes = 000), the tube will be filled until the optional 50% filling level sensor is covered, or emptied until this sensor is no longer covered.

To activate/deactivate the float-up function:

Quick approach:

`= Main menu > E = Settings > Operating modes > Float-up`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The correct menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Float-up`	You want to activate/deactivate the FLOAT-UP function
5	E	1 x	Now you can activate/deactivate the FLOAT-UP function
6	A / B	until setting desired	You want to activate/deactivate the function
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Setting tube counters to float levels automatically

Activate this function if you remove the coin cassette to directly refill it with a certain number of coins (float levels). This is to ensure that the tube counters will be set to the float level coin number automatically in the tube filling mode as soon as you remove the cassette from the coin changer.

To activate/deactivate the automatic tube counter programming:

Quick approach:

`= Main menu > E = Settings > Operating modes > Program tube counters autom.`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The correct menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Program tube counters autom.`	You want to activate/deactivate the function
5	E	1 x	Now you can activate/deactivate the function
6	A/B	until setting desired	You want to activate/deactivate the function
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Correcting tube counters according to filling level sensors

Six tube counters are monitoring the exact number of coins in the tubes and register each coin collected by and paid out from the tubes.

In addition each tube is equipped with up to four filling level sensors. If the coin changer is supposed to compare the tube counter readings with the measured filling levels of the sensors after a coin has been accepted or paid out and correct the tube counters if necessary, you should activate the automatic tube counter correction.

If the vending machine control is unable to process the automatic correction of the tube counters, you must deactivate this function.

If the tube counter correction is deactivated, ensure that the tubes are emptied either using the inventory keys or the service menu. Otherwise the tube counters do not equal zero before refilling the tubes, but the number of coins registered before emptying the tubes (cp. separate service manual).

To activate/deactivate the tube counter correction:

Quick approach:

`= Main menu > E = Settings > Operating modes > Tube counter correction`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Tube counter correction`	You want to activate/deactivate the TUBE COUNTER CORRECTION
5	E	1 x	Now you can activate/deactivate the TUBE COUNTER CORRECTION
6	A/B	until setting desired	You want the tube counters to be corrected/not corrected according to filling level sensors
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Resetting tube counters before fill-up

If change is refilled by inserting the tube coins but the cassette is removed to be completely emptied before fill-up, the coin changer should be set so that the tube counters will be reset when removing the cassette, i.e. before refilling the tubes.

To activate/deactivate the tube counter reset:

Quick approach:

`= Main menu > E = Settings > Operating modes > Tube counters correct. to zero`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Tube counters correct. to zero`	You want the TUBE COUNTERS to be reset/ignored
5	E	1 x	Now you can set the function
6	A/B	until setting desired	You want the tube counters to be reset/ignored when removing the coin cassette
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Redirecting cash-box coins to return area

If you replenish change by inserting coins and if you do not want the cash-box coins to be accepted but only the tube coins, the coin changer can be set so that all cash-box coins will be inhibited and redirected to the return area when the changer is in tube filling mode.

To disable/enable the cash-box coins when refilling the coin cassette:

Quick approach:

`= Main menu > E = Settings > Operating modes > Only tube coins in filling mode`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Only tube coins in filling mode`	You want only tube coins/also cash-box coins to be accepted
5	E	1 x	Now you can set the function
6	A/B	until setting desired	In tube filling mode you want only tube coins/also cash-box coins to be accepted
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Reporting inserted coins to machine (only c² MDB)

If you replenish change by inserting the tube coins in the tube filling mode and if you want the machine to count the coins inserted and display them for checking purposes, the coin changer may transfer a filling report to the machine.

To activate/deactivate the filling report function:

Quick approach:

`= Main menu > E = Settings > Operating modes > Manual fill report`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Manual fill report`	You want the machine to receive/not receive a filling report
5	E	1 x	Now you can set the function
6	A/B	until setting desired	You want the changer to transfer/not transfer a filling report
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Disabling/enabling inventory keys / disabling/enabling inventory keys using MDB/BDV protocol (only c² blue/green)

During normal operating mode as well as in the Inventory menu the coin changer keys A, B, C, D, E and F are used as inventory keys. When operating the inventory keys the coin changer pays out coins from the corresponding change tube A, B, C, D, E or F.

You may configure the coin changer so that the inventory keys are

- enabled,
- disabled or
- enabled/disabled by the VMC

To disable/enable the inventory keys:

Quick approach:

= Main menu > E = Settings > Operating modes > Configure inventory keys

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2		1 x	You enter the SETTING menu. The required menu item has already been selected
3		1 x	You enter submenu OPERATING MODES. The required menu item has already been selected
4		1 x	You want to enable/disable the INVENTORY KEYS
5		until setting desired	You want the keys to be disabled/ enabled/controlled by the VMC
6		1 x	You lock the setting in memory
7		1 x/2 x	You return to main menu/operating mode

5 Prices and vending modes (only c² BDV/Executive)

This BDV & Executive chapter describes how to

- hold the prices in the coin changer
- configure "Committed to vend" or change return at any time
- configure single or multi vend
- reset or store credit which cannot be paid out

Price holding in the coin changer

Usually, the prices for the Executive protocol are set in the vending machine, so that the coin changer does not know which product has been selected and sold.

In order to be able to hold the prices in the coin changer and include the single product-specific turnovers in the audit in this section you will learn how to

- set prices in the coin changer and
- activate price holding in the coin changer.

Beyond that the coin changer may display the price of the product selected.

Setting prices

You can set up to 100 prices:

Quick approach:

`= Main menu > E = Settings > Selling prices`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Selling prices`	You want to enter submenu SELLING PRICES
4	E	1 x	You enter the submenu
5	A/B	until price desired	You want to set this price
6	E	1 x	Now you can set this price
7	D/C	until required digit	You highlight the digit of the price to be set
8	A/B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the other digits of the price, if necessary*		
10	E	1 x	You lock the set price in memory
11	*Please repeat steps 5 to 10 to the other prices, if necessary*		
12		1 x/2 x	You return to main menu/operating mode

You may divide the 100 prices into 2 x 50 prices for card and cash payment. The first price list (prices 1–50) is valid for transactions without any card inserted (cash payment), and the second price list (prices 51–100) for transactions with a card inserted (see section "Activating second price list for card transactions" in Chap. 8 "Peripheral").

Activating coin changer price holding

If you want the coin changer to hold the prices and include the product-specific sales data in the audit, you must activate the price holding function.

To activate/deactivate the price holding function:

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > Price Holding > Price Holding`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu
6	B	until `Price Holding`	You want to enter submenu PRICE HOLDING
7	E	1 x	You enter the submenu PRICE HOLDING. The required menu item has already been selected
8	E	1 x	Now you can activate/deactivate the PRICE HOLDING function
9	A / B	until setting desired	You want to activate/deactivate the function
10	E	1 x	You lock the setting in memory
11		1 x/2 x	You return to main menu/operating mode

Displaying price

If you want the machine to display the price of the product selected, you have to adapt the coin changer configuration accordingly.

To display/suppress the price:

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > Price Holding > Indicate price of product`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu
6	B	until `Price Holding`	You want to enter submenu PRICE HOLDING
7	E	1 x	You enter the submenu PRICE HOLDING
8	B	until `Indicate price of product`	You want the price of the product selected to be displayed/not displayed
9	E	1 x	Now you can activate/deactivate the function
10	A/B	until setting desired	You want the price to be displayed/not displayed
11	E	1 x	You lock the setting in memory
12		1 x/2 x	You return to main menu/operating mode

Configuring "Committed to vend" or change return at any time

To ensure that the vending machine is not used as a money changer and inserted cash is returned whenever you want, the coin changer can be set up so that change is only paid out after a vending operation.

If the changer is not set to "Committed to vend", the customer, at any time, can cause the return of the (residual) credit by pressing the return button, even without having pressed a selection button or bought something.

In addition, a maximum amount of money, which is allowed to be accepted at most for a transaction, can be configured (see section "Limiting acceptance of coins and banknotes (only c² BDV/Executive)" in Chap. 6 "Cash acceptance").

To activate/deactivate "Committed to vend":

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > Committed to vend`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu
6	B	until `Committed to vend`	You want/do not want the customer to buy something before he can claim back the change
7	E	1 x	Now you can set the function
8	A/B	until setting desired	You want to activate/deactivate the "Committed to vend" function
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Configuring single or multi vend

In principle the customer can purchase a number of products one after the other once he has inserted his money (multi vend). The change is not paid out until the customer has operated the return lever.

However, the coin changer can also be set to "single vend", i.e. the customer can only insert coins until the value of the highest set price is reached. Change is then paid out automatically after each vend.

To set single or multi vend:

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > Single/Multi vend`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu. The required menu item has already been selected
6	E	1 x	You want to set SINGLE or MULTI VEND
7	A / B	until setting desired	Single or multi vend is to be activated
8	E	1 x	You lock the setting in memory
9		1 x/2 x	You return to main menu/operating mode

Resetting or storing credit which cannot be paid out

If the remaining credit cannot be paid out of the coin cassette or connected hoppers or recyclers (payout units are empty or no appropriate tube/hopper coin/recycler banknote programmed), that credit can either be reset or saved for the next vending operation or customer.

To reset/store the credit which cannot be paid out:

Quick approach:

`= Main menu > E = Settings > Operating modes > Residual credit`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Residual credit`	You want to specify how to manage the RESIDUAL CREDIT
5	E	1 x	Now you can set the function
6	A/B	until setting desired	You want the residual credit which cannot be paid out to be DELETED/stored
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

6 Cash acceptance

This chapter describes how to adapt the acceptance of coins (and banknotes) to the machine environment:

- Limiting acceptance of coins and banknotes (only c^2 BDV/Executive)
- Limiting acceptance of tube coins (filling level limitation)
- Inhibiting coins
- Inhibiting high-value coins if there is not enough change (only c^2 BDV/Executive)
- Optimising acceptance of genuine coins/rejection of fraud coins (defining acceptance tolerances)
- Selecting coin group A or B
- Preventing coins from geting stuck in the tubes (security stock)

Limiting acceptance of coins and banknotes (only c² BDV/Executive)

In order to prevent the vending machine from being used as a money changer, you can set a maximum amount of money which may be accepted during a single vending operation (acceptance limitation). If this amount is reached or exceeded, the acceptance of coins and bills is inhibited.

In addition, you may set the coin changer so that the change is returned only after a transaction and automatically (see section "Configuring "Committed to vend" or change return at any time" in Chap. 5 "Prices and vending modes").

To configure the acceptance limitation:

Quick approach:

`= Main menu > E = Settings > Operating modes > Limitations > Acceptance limit`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Limitations`	You want to enter submenu LIMITATIONS
5	E	1 x	You enter the submenu. The required menu item has already been selected
6	E	1 x	You want to set the acceptance limitation
7	D / C	until required digit	You highlight the digit to be set
8	A / B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the other digits of the acceptance limitation, if necessary*		
10	E	1 x	You lock the set acceptance limitation in memory
11		1 x/2 x	You return to main menu/operating mode

Limiting acceptance of tube coins (filling level limitation)

The changer can be configured so that each change tube accepts no more than a specific number of coins. When this number of coins is reached in a tube, all further coins for this tube are then directed into the cash-box temporarily. Only when coins have been paid out of this tube, coins are again sorted into the tube.

If this function is not used (setting "000"), the upper filling level sensor (full sensor) of the tubes determines, irrespective of the number of coins, from when the coins will be sorted into the cash-box and no longer into the tubes.

To configure the filling level limitation:

Quick approach:

`= Main menu > E = Settings > Coin settings > Filling level limitation`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Coin settings`	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Filling level limitation`	You want to enter submenu FILLING LEVEL LIMITATION
6	E	1 x	You enter the submenu
7	A/B	until tube desired	You want to set a filling level limitation for this tube
8	E	1 x	Now you can set a limitation for this tube
9	D/C	until required digit	You highlight the digit to be set
10	A/B	until required value	This value is to be set
11	*Please repeat steps 9 and 10 to set the other two digits of the filling level limitation, if necessary*		
12	E	1 x	You lock the set filling level limitation in memory
13	*Please repeat steps 7 to 12 to set the filling level limitations of the other tubes, if necessary*		
14		1 x/2 x	You return to main menu/operating mode

Inhibiting coins

If you want certain coins to be no longer accepted for payment at the machine, you may inhibit these coins (temporarily).

The coin changer stores the coins 1–16 in ascending coin value order, i.e. "coin 01" is always the lowest-value and "coin 16" always the highest-value coin programmed.

To inhibit/release a certain coin:

Quick approach:

`= Main menu > E = Settings > Inhibit mask > Inhibit mask`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Inhibit mask`	You want to enter submenu INHIBIT MASK
4	E	1 x	You enter the submenu. The required menu item has already been selected
5	E	1 x	You want to inhibit/release a coin
6	A/B	until coin desired	You want to inhibit/release this coin
7	E	1 x	Now you can inhibit/release this coin
8	A/B	until setting desired	You want this coin to be inhibited/ released
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Inhibiting high-value coins if there is not enough change (only c² BDV/Executive)

If you want high-value coins to be no longer accepted whenever the machine displays "tube empty" (see section "Configuring conditions for tube empty message (only c² BDV/Executive)" in Chap. 7 "Change payout"), they can be inhibited automatically depending on this message.

To inhibit/release a certain coin if there is not enough change:

Quick approach:

`= Main menu > E = Settings > Inhibit mask > Inhibit if tube empty`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Inhibit mask`	You want to enter submenu INHIBIT MASK
4	E	1 x	You enter the submenu
5	B	until `Inhibit if tube empty`	You want to inhibit/release coins automatically if there is not enough change
6	E	1 x	Now you can select the relevant coin
7	A/B	until coin desired	You want to inhibit/release this coin
8	E	1 x	Now you can inhibit/release this coin
9	A/B	until setting desired	You want this coin to be inhibited/ released if there is not enough change
10	E	1 x	You lock the setting in memory
11		1 x/2 x	You return to main menu/operating mode

Optimising acceptance of genuine coins/rejection of fraud coins (defining acceptance tolerances)

For the acceptance of (high-value) coins programmed the coin changer is capable of having up to three acceptance bands with different acceptance tolerances. In order that genuine coins are always accepted and fraud coins rejected reliably you may assign a "normal", "narrow" or "very narrow" (smallest acceptance tolerances) acceptance band.

Narrow and very narrow acceptance bands possess a lower acceptance rate of genuine coins.

To select the acceptance tolerances:

Quick approach:

`= Main menu > E = Settings > Coin settings > Security level`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Coin settings`	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Security level`	You want to specify a coin's acceptance tolerances
6	E	1 x	Now you select the coin
7	A/B	until coin with problematic acceptance	You want to select a NORMAL/NARROW/ VERY NARROW acceptance band for this coin
8	E	1 x	Now you can select the acceptance band
9	A/B	until acceptance band width desired	You want the coin to be accepted in this band width
10	E	1 x	You lock the setting in memory
11		1 x/2 x	You return to main menu/operating mode

Selecting coin group A or B

The coins porgrammed in the coin changer may have been assigned to two coin groups A or B at the manufacturer, e.g., to differentiate between two currencies (1st currency = coin goup A, 2nd currency = coin group B). In future you can modify the coin group setting using the configuration software currenza heartbeat (cp. separate heartbeat manual)

These two coin groups can be selected using the switching block on the rear of the coin validator, in order that the coin changer accepts either coin group A or B:

1. Turn machine's power off.
2. Unlatch coin validator and remove it from the changer (see Fig. 2, A & B).

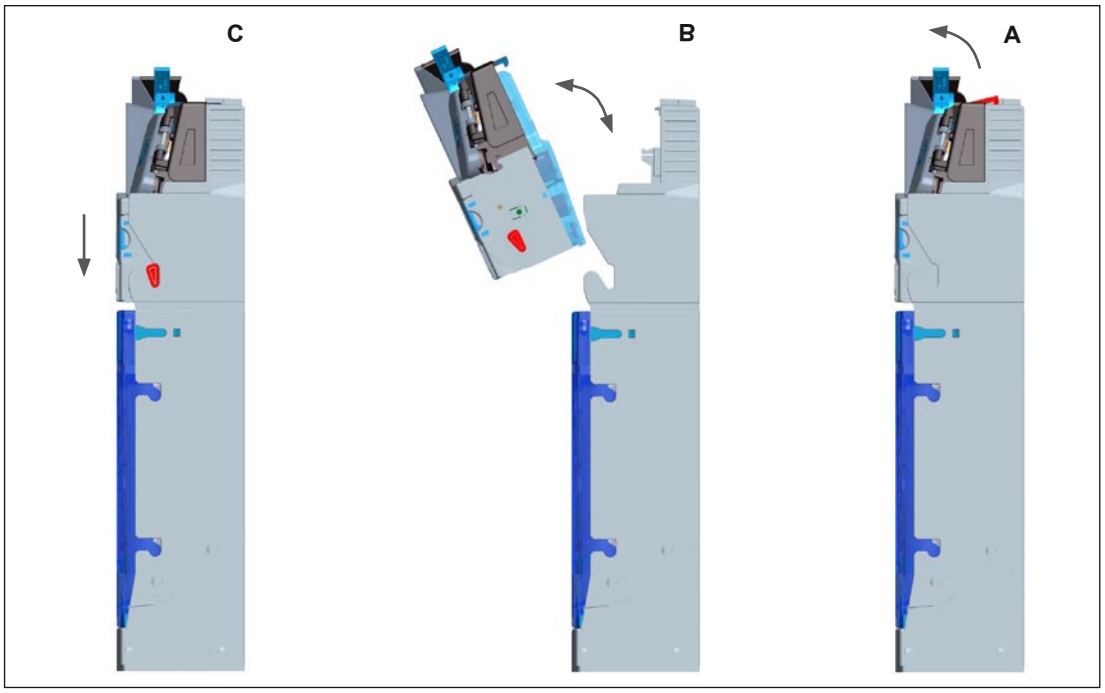


Fig. 2: Removing and reinstalling coin validator

3 Use DIL switch 10 to select coin group A or B (see Fig. 3).

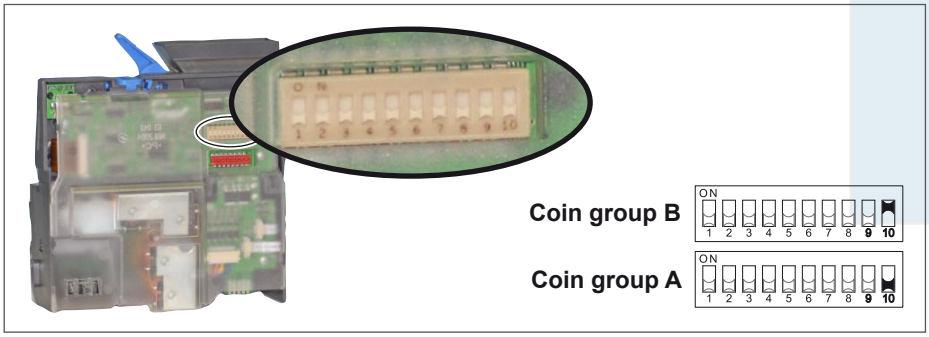


Fig. 3: Selecting coin group

4 Reinsert coin validator until it clicks in position (see Fig. 2, B & C).
5 Turn power on.
6 Turn power off and on again.

Preventing coins from getting stuck in the tubes

If a security stock is configured for the individual change tubes, the changer does not pay out a minimum number of tube coins.

For coins that cause problems during stacking and tend to stand upright instead of lying flat, a relatively high setting for the security stock should be selected since the coins will no longer spring back and stand upright when they fall onto a higher stack of coins.

In case there is no setting (entry "00"), the security stock is set to 3 automatically.

MDB changers can also be set so that the configured security stock can be paid out by the vending machine and the security stock can also be transmitted to the vending machine whenever the machine scans the tube filling level.

Configuring security stock for each tube

To configure the security stock (1–9 coins):

Quick approach:

`= Main menu > E = Settings > Coin settings > Security stock`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Coin settings`	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Security stock`	You want to enter submenu SECURITY STOCK
6	E	1 x	You enter the submenu
7	A/B	until tube desired	You want to set a security stock for this tube
8	E	1 x	Now you can set a security stock for this tube
9	D/C	until required digit	You highlight the digit to be set
10	A/B	until required value	This value is to be set
11	*Please repeat steps 9 and 10 to set the other digit of the security stock, if necessary*		
12	E	1 x	You lock the set security stock in memory
13	*Please repeat steps 7 to 12 to the security stocks of the other tubes, if necessary*		
14		1 x/2 x	You return to main menu/operating mode

Transmitting tube filling level incl. security stock to VMC (only c² MDB)

The coin changer is able to transmit the filling level of the tubes inclusive of the security stock configured to the vending machine control system.

To define the data to be transferred:

Quick approach:

`= Main menu > E = Settings > Operating modes > Security stock to VMC`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The correct menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Security stock to VMC`	You want the security stock to be SENT/ NOT TO BE SENT TO THE VMC
5	E	1 x	Now can set the function
6	A/B	until setting desired	The security stock is to be sent/not to be sent
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

Enabling VMC to payout security stock with DISPENSE (only c² MDB)

If you want the vending machine to be able to pay out also the security stock using the DISPENSE command:

Quick approach:

`= Main menu > E = Settings > Operating modes > Security stock in the tubes`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The correct menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Security stock in the tubes`	You want a PAYABLE/NOT PAYABLE security stock
5	E	1 x	Now you can set the function
6	A/B	until setting desired	You want the VMC to be able/not to be able to payout the security stock
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

7 Change payout

This chapter describes how to adapt the change payout to the machine environment:

- Reassigning coin cassette
- Limiting change return (only c² BDV/Executive)
- Configuring conditions for tube empty message (only c² BDV/Executive)
- Activating low-power single-motor payout

Reassigning coin cassette

If you exchanged the change tubes or coin cassette, in order to be able to pay out other or more coins, the new sorting must be set in the coin changer.

The coin changer comes with pre-programmed coin cassette combinations, which can be selected depending on the new sorting.

If the new tube combination is not part of the pre-programmed combinations, it may be configured manually.

To select a new tube combination:

Quick approach:

`= Main menu > E = Settings > Coin settings > Coin sorting > Select tube cassette`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Coin settings`	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Coin sorting`	You want to enter submenu COIN SORTING
6	E	1 x	You enter the submenu. The required menu item has already been selected
7	E	1 x	You want to select a new pre-programmed tube combination
8	A/B	until required tube combination	This tube combination matches your new coin cassette and is to be configured
9	E	1 x	You lock the setting in memory
In case none of the tube combinations suggested fits the new coin cassette, you may also configure the individual tube coins:			
A	F	1 x	You want to enter submenu COIN SORTING
B	B	until `New payout combination`	You want to configure the tube coins individually
C	E	1 x	Now you can configure the tube coins
D	A/B	until required tube	You want to set a new coin value for this tube
E	E	1 x	Now you can enter a value
F	D/C	until required digit	You highlight the digit to be set
G	A/B	until required value	This value is to be set
H	*Please repeat steps F and G to set the other digits of the coin value, if necessary*		
I	E	1 x	You lock the set tube coin value in memory
J	*Please repeat steps D to I to set the tube values of the other tubes, if necessary*		
10/K		1 x/2 x	You return to main menu/operating mode

Limiting change return (only c² BDV/Executive)

You have the possibility to define a maximum residual amount that the changer is supposed to pay out to the customer at most. The customer must then purchase enough during one vending operation so that the residual credit is less than the set change limitation.

To configure the change limitation:

Quick approach:

`= Main menu > E = Settings > Operating modes > Limitations > Change limit`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Limitations`	You want to enter submenu LIMITATIONS
5	E	1 x	You enter the submenu
6	B	until `Change limit`	You want to set the change limitation
7	E	1 x	Now you can set the function
8	D / C	until required digit	You highlight the digit to be set
9	A / B	until required value	This value is to be set
10	*Please repeat steps 8 and 9 to set the other digits of the change limitation, if necessary*		
11	E	1 x	You lock the set change limitation in memory
12		1 x/2 x	You return to main menu/operating mode

Configuring conditions for tube empty message (only c^2 BDV/Executive)

The lowest filling level sensor (empty sensor) signals that a tube is empty. When you want the vending machine to display "tube empty", i.e. which tube(s) is/are to be empty, in order that the empty message is displayed, you may specify depending on the tube coins.

The following coding scheme can be configured:

Code 00 "Tube empty" if tube M_1 or M_2 or tubes M_3 and M_4 empty

Code 01 “Tube empty” if tubes $M_{1–4}$ empty

Code 02 “Tube empty” if tubes $M_{1–3}$ empty

Code 03 “Tube empty” if tubes $M_{1–2}$ empty

Code 04 “Tube empty” if tubes M_1 and M_3 empty

Code 05 “Tube empty” if tubes M_1 and M_2 or tube M_3 empty

Code 06 “Tube empty” if tube M_1 or M_2 or M_3 empty

Code 07 “Tube empty” if tube M_1 or M_2 empty

Code 08 “Tube empty” if tube M_1 empty

Code 09 “Tube empty” if tube M_2 empty

Code 10 “Tube empty” if tube M_3 empty

Code 11 “Tube empty” if tube M_4 empty

Code 12 “Tube empty” if tube M_5 empty

Code 13 “Tube empty” if tube M_6 empty

Code 14 “Tube empty” if tubes $M_{2–3}$ empty

Code 15 “Tube empty” if tubes M_2 and M_4 empty

M_1 = Tube coin with lowest value
M_6 = Tube coin with highest value

To configure the tube empty code:

Quick approach:

= Main menu > E = Settings > Coin settings > Condition for tube empty

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until Coin settings	You want to enter submenu COIN SETTINGS
4	E	1 x	You enter the submenu
5	B	until Condition for tube empty	You want to configure a tube empty code
6	E	1 x	Now you can set the function (cp. table above)
7	D / C	until required digit	You highlight the digit to be set
8	A / B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the second digit of the code, if necessary*		
10	E	1 x	You lock the set code in memory
11		1 x/2 x	You return to main menu/operating mode

Activating low-power single-motor payout

If you want the coin changer to use as less electricity as possible, e.g. in battery operation, it may use only one motor instead of all motors at the same time when paying out coins.

To activate/deactivate the single-motor payout:

Quick approach:

`= Main menu > E = Settings > Operating modes > Simple payout`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Simple payout`	You want to ACTIVATE/DEACTIVATE the single-motor payout
5	E	1 x	Now you can set the function
6	A / B	until setting desired	When paying out, you want one/all motors to be controlled
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

8 Peripheral

This chapter describes how to

- set up communication between coin changer and peripherals connected
- make settings on the coin changer in order to apply them to the peripherals.

You can make settings for the following peripheral devices:

- hoppers
- recycler
- bill validator
- card reader
- external audit unit

Hopper settings

If a coin type is frequently paid out as change, and the respective tube is often empty, you can use an NRI hopper interface to connect up to four hoppers to the coin changer from which the vending machine can pay out coins on an alternative basis.

In the changer, a setting must be made that one hopper or more hoppers are connected and which coin is being collected in the hopper so that the coin changer can decide which residual credit can no longer be paid out by the changer and must be paid out from the hoppers.

Beyond that the coin changer must know the active level (low/high) of the coin payout and empty detection (option) signals.

Setting hopper coins

To configure the value of the coins collected in the hopper(s):

The hopper designations 1–4 refer to the connectors 1–4 on the hopper interface used to connect the hopper(s) to the coin changer (cp. separate manual for the hopper interface). Hopper 1, e.g., is connected using hopper connector 1.

Quick approach:

`= Main menu > E = Settings > Peripheral > Hopper > Coin value in hopper 1/2/3/4`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Hopper`	You want to enter submenu HOPPER
6	E	1 x	You enter the submenu
7	B	until `Coin value in hopper 1`	You want to set the value of the coins collected in hopper 1
8	E	1 x	Now you can set the value
9	D / C	until required digit	You highlight the digit to be set
10	A / B	until required value	This value is to be set
11	*Please repeat steps 9 and 10 to set the other digits of the coin value, if necessary*		
12	E	1 x	You lock the set coin value in memory
13	*Press F-key and repeat steps 7 to 12 to set further hopper coins, if necessary*		
14		1 x/2 x	You return to main menu/operating mode

The hopper connectors not in use retain coin value "00.00".

Setting up communication with hopper(s)

To activate the communication between coin changer and hopper(s):

Quick approach:

`= Main menu > E = Settings > Peripheral > Hopper > Communication with hopper`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Hopper`	You want to enter submenu HOPPER
6	E	1 x	You enter the submenu. The required menu item has already been selected
7	E	1 x	Now you can set up the communication with the hopper(s)
8	A/B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Specifying active levels of the hopper payout and empty signal

In order that the coin changer is able to evaluate the signals coming from the hopper(s), when a hopper pays out a coin or is empty and can no longer pay out coins (only with optional empty detection), you must set the signals' active levels (low/high).

Make sure that all hoppers connected use the same active level for the coin signal or the empty signal (cp. separate manuals for the NRI hopper currenza h² and hopper interface).

To specify the active levels:

Quick approach:

`= Main menu > E = Settings > Peripheral > Hopper > Coin signal/empty signal of hopper`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Hopper`	You want to enter submenu HOPPER
6	E	1 x	You enter the submenu
7	B	until `Coin signal of hopper`	You want to specify the active level of the coin payout signals coming from the hopper
8	E	1 x	Now you can specify the active level
9	A / B	until setting desired	The signals are supposed to be HIGH/ ACTIVE / LOW/ACTIVE
10	E	1 x	You lock the setting in memory
11	*Press F-key and repeat steps 8 to 10 to specify the empty signal coming from the hopper (only for hoppers with empty detection)*		
12		1 x/2 x	You return to main menu/operating mode

Recycler settings

If you want the vending machine to pay out banknotes as change, you may use the recycler interface to connect a recycler (banknote payout unit) to the coin changer from which the vending machine can pay out banknotes instead of coins.

Please consider the following coin changer settings for communication between both devices:

- Communication set-up
- No acceptance of high-value banknotes if there is not enough change (only c² MDB)
- Compensation of banknote security stock (only c² MDB)

Setting up communication with recycler

To activate the communication between an **MDB coin changer** and a recycler:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bill recycler > Communication with recycler`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu. The required menu item has already been selected
5	E	1 x	You enter submenu BILL RECYCLER. The required menu item has already been selected
6	E	1 x	Now you can set up the communication with the recycler
7	A/B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
8	E	1 x	You lock the setting in memory
9		1 x/2 x	You return to main menu/operating mode

To activate the communication between an **BDV/Executive coin changer** and a recycler:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bill recycler`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Bill recycler`	You want to set up the communication with the recycler
6	E	1 x	Now you can set up the communication
7	A / B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
8	E	1 x	You lock the setting in memory
9		1 x/2 x	You return to main menu/operating mode

Inhibiting high-value banknotes depending on change stock (only c² MDB)

If a CashCode recycler is conntected to an MDB coin changer, you can inhibit the acceptance of high-value banknotes if there is not enough change. I.e. before each sale the coin changer decides which banknote can be accepted and which cannot be accepted, depending on the current change stock in the coin cassette and recycler.

This setting is intended for applications in vending machines which do not support this function.

To limit the banknote acceptance:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bill recycler > Inhibit bill acceptance`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu. The required menu item has already been selected
5	E	1 x	You enter submenu RECYCLER
6	B	until `Inhibit bill acceptance`	You want high-value banknotes to be inhibited/always be accepted depending on the change
7	E	1 x	Now you can set the function
8	A/B	until setting desired	You want to activate/not activate the function
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Paying out all banknotes (compensating the machine‘s security stock) (only c² MDB)

Some vending machines (particularly in the USA) keep a security stock of coins in the tubes. As the machine handles banknotes available for payout like tube coins not all of the banknotes can be payed out as change. If you want the vending machine to pay out all banknotes you can compensate the security stock. (For "security stock" details cp. section "Preventing coins from getting stuck in the tubes" in Chap. 6 "Cash acceptance")

To compensate the security stock:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bll recycler > Empty recycler store`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu. The correct menu item has already been selected
5	E	1 x	You enter submenu RECYCLER
6	B	until `Empty recycler store`	You want the recycler to pay out all banknotes/keep at least 3 banknotes
7	E	1 x	Now you can set the function
8	A / B	until setting desired	You want to activate/deactivate the function
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Bill validator settings (only c² BDV/Executive)

You may connect an MDB bill validator to the coin changer. Please consider the following coin changer settings for communication between both devices:

- Communication set-up (only c² BDV/Executive)
- No acceptance of banknotes when machine displays "Tube empty" (only c² BDV/Executive)
- Acceptance of banknotes only for card payments (only c² BDV/Executive)

Setting up communication with MDB bill validator

To activate the communication between coin changer and MDB bill validator:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bill validator > Bill validator`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Bill validator`	You want to enter submenu BILLL VALIDATOR
6	E	1 x	You enter the submenu. The required menu item has already been selected
7	E	1 x	Now you can set up the communication with the bill validator
8	A/B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Inhibiting/releasing banknote acceptance depending on change stock or card payments

- Inhibiting banknote acceptance if machine displays "Tube empty":
  If the coin cassette has a shortage of change and the machine displays "Tube empty" (depending on conditions set), the bill validator can be blocked automatically.
- Enabling bill validator for card payments only:
  The bill validator can always be enabled or only if a card is inserted into a card reader connected.

To inhibit/release the banknote acceptance:

Quick approach:

`= Main menu > E = Settings > Peripheral > Bill validator > Enable bill acceptance`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Bill validator`	You want to enter submenu BILL VALIDATOR
6	E	1 x	You enter the submenu
7	B	until `Enable bill acceptance`	You want to limit the acceptance of banknotes
8	E	1 x	Now you can set the function
9	A/B	until setting desired	You want the machine to accept banknotes: IF tubes are NOT EMPTY/a CARD is inserted/ALWAYS
10	E	1 x	You lock the setting in memory
11		1 x/2 x	You return to main menu/operating mode

Card reader settings (only c² BDV/Executive)

This section describes how to

- set up communication between coin changer and MDB/BDV card reader
- activate a second price list for card payments
- limit card charging
- reinitialise the card reader after a sale

Setting up communication with MDB/BDV card reader

The following card systems may be connected to the coin changer:

- BDV card system
- MDB card system (standard address)
- MDB card system (address 0x60)

To activate the communication between coin changer and card reader:

Quick approach:

`= Main menu > E = Settings > Peripheral > Cashless > BDV cashless/MDB cashless (standard addr.)/MDB cashless (address 0x60)`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu. The required menu item has already been selected
5	E	1 x	You enter submenu CASHLESS
6	B	until card reader connected	You want to set up the communication with a BDV/MDB card system (standard address)/MDB card system (address 0x60)
7	E	1 x	Now you can set up communication
8	A/B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Activating second price list for card transactions

You can divide the up to 100 prices into 2 x 50 prices. The first price list (prices 1–50) is valid without any card inserted (for cash sales), and the second price list (prices 51–100) is valid with a card inserted (for card payment).

To activate/deactivate the second price list:

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > Price Holding > 2 price lists with cashless`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The correct menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu
6	B	until `Price Holding`	You want to enter submenu PRICE HOLDING
7	E	1 x	You enter the submenu PRICE HOLDING
8	B	until `2 price lists with cashless`	You want to apply another price list/the standard price list to sales with card
9	E	1 x	Now you can set the function
10	A/B	until setting desired	You want the second price list to be activated/deactivated
11	E	1 x	You lock the setting in memory
12		1 x/2 x	You return to main menu/operating mode

Limiting debit card recharging (only for BDV/MDB card readers)

In case a BDV or MDB card system is connected to the coin changer, you may define a maximum credit with which debit cards can be charged.

If you do no longer want the customers to credit their debit cards, you can configure a credit of 099.00.

To configure a credit limitation:

Quick approach:

`= Main menu > E = Settings > Operating modes > Limitations > Credit limit for cashless`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Limitations`	You want to enter submenu LIMITATIONS
5	E	1 x	You enter the submenu
6	B	until `Credit limit for cashless`	You want to determine a credit limitation
7	E	1 x	Now you can set the function
8	D/C	until required digit	You highlight the digit to be set
9	A/B	until required value	This value is to be set
10	*Please repeat steps 8 and 9 to set the other digits of the credit limitation, if necessary*		
11	E	1 x	You lock the set credit limitation in memory
12		1 x/2 x	You return to main menu/operating mode

Reinitialising card reader after each transaction

Perhaps some of the older card systems have to be reinitialised after each transaction.

To activate/deactivate the function "Reinitialise card reader after each transaction":

Quick approach:

`= Main menu > E = Settings > Operating modes > Selling mode > CPC new start after vend`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Selling mode`	You want to enter submenu SELLING MODE
5	E	1 x	You enter the submenu
6	B	until `CPC new start after vend`	You want the connected card reader to be initialised/no longer initialised after each sale
7	E	1 x	Now you can set the function
8	A/B	until setting desired	You want to activate/deactivate the function
9	E	1 x	You lock the setting in memory
10		1 x/2 x	You return to main menu/operating mode

Setting up communication with external audit unit (only c² BDV/Executive)

If there is an external machine audit unit connected, the only thing to do is to set up communication with the coin changer.

To activate the communication between coin changer and external audit unit:

Quick approach:

`= Main menu > E = Settings > Peripheral > Audit unit in the machine`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Peripheral`	You want to enter submenu PERIPHERAL
4	E	1 x	You enter the submenu
5	B	until `Audit unit in the machine`	You want to set up the communication with the external audit unit
6	E	1 x	Now you can set up communication
7	A/B	until setting desired	You want the communication to be ACTIVE/NOT ACTIVE
8	E	1 x	You lock the setting in memory
9		1 x/2 x	You return to main menu/operating mode

9 Audit (option)

This chapter describes all settings to be considered if the coin changer is equipped with an internal audit module. You learn how to

- set the vending machine number
- set date and time
- specify data to be printed
- set the output device (format/device type)
- activate the maximum IrDA readout speed
  (only c² with IrDA interface on coin validator)

The language of the audit receipts has been selected with the dialogue language (cp. section "Selecting menu language" in Chap. 3 "Presettings").

Setting vending machine number

In order that the audits can easily and unambiguously be assigned to a certain vending machine, we recommend to store a vending machine number in the coin changer.

Configuring a vending machine number reinitialises the coin changer, and all audit data since the last initialisation will be deleted. (For reading out/printing the c² audit data please refer to the separate service manual, if necessary).

If you use a mobile data retrieval unit (MDE) to audit the coin changer data, the vending machine number cannot be changed.

To set the vending machine number:

Quick approach:

`= Main menu > E = Settings > Audit module > Machine number`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu. The required menu item has already been selected
5	E	1 x	Now you can set the MACHINE NUMBER
6	D / C	until required digit	You highlight the digit to be changed
7	A / B	until required value	This value is to be set
8	*Please repeat steps 6 and 7 to set the other nine digits of the machine number, if necessary*		
9	E	1 x	You lock the set number in memory
10		1 x/2 x	You return to main menu/operating mode

Setting date and time

In order to be able to print or read out the audit data with date and time, you have to set the system time:

Quick approach:

`= Main menu > E = Settings > Audit module > Set system date/time`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu
5	B	until `Set system date`	You want to set the SYSTEM DATE
6	E	1 x	Now you can set the date
7	D / C	until required digit	You highlight the digit to be changed
8	A / B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the other digits of the date, if necessary*		
10	E	1 x	You lock the set date in memory
11	*Press F-key and repeat steps 5 to 10 to set the time*		
12		1 x/2 x	You return to main menu/operating mode

Specifying data to be printed

For the printout of audit data you can set the following:

- Printing/Not printing time
- Printing/Not printing product/price-specific audit data
- Printing/Not printing tube and cash-box sales data

The language of the audit receipts has been selected with the dialogue language (cp. section "Selecting menu language" in Chap. 3 "Presettings").

To specify data to be printed:

Quick approach:

`= Main menu > E = Settings > Audit module > Configurate printer interface > Time/ Product-specific data/Sales data`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu
5	B	until `Configurate printer interface`	You want to enter submenu CONFIGURATE PRINTER INTERFACE
6	E	1 x	You enter the submenu. The menu item for the first setting has already been selected
7	E	1 x	Now you can set whether audit receipts are to be printed with or without date & time
8	A/B	until setting desired	You want the date/time to be printed/ not to be printed
9	E	1 x	You lock the setting in memory
10	*Press F-key, then B-key and repeat stepts 7 to 9 for settings "Product-specific data/ Sales data"*		
11		1 x/2 x	You return to main menu/operating mode

Setting output device

Please set once with which printer/data acquisition device you want to output audit receipts (with or without start button) and which format is going to be used.

The language of the audit receipts has been selected with the dialogue language (cp. section "Selecting menu language"in Chap. 3 "Presettings").

Selecting printing format

Two different formats can be used to print audit data:

- Extra broad printout (24 characters/line):
  audit data can be separated in "since initialisation" and "since last printout" and printed out side by side.
- Unsorted printout (12 characters/line)

To select printing format:

Quick approach:

`= Main menu > E = Settings > Audit module > Configurate printer interface > Printer format`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu
5	B	until `Configurate printer interface`	You want to enter submenu CONFIGURATE PRINTER INTERFACE
6	E	1 x	You enter the submenu
7	B	until `Printer format`	You want to set the PRINTER FORMAT
8	E	1 x	Now you can set the format.
9	A / B	until setting desired	You want the audit receipts to have a broad format (24 characters/line) or normal format
10	E	1 x	You lock the selected format in memory
11		1 x/2 x	You return to main menu/operating mode

Selecting type of output device

The coin changer must know whether the printer or mobile data acquisition device (MDE) has a start button or not, so that the output line of printers/ readout devices without start button (they start to output data as soon as they are connected) will be monitored and the data output be stopped after all data has been transmitted.

Set the NRI printer G-55.0510 to "(start button) not exists" and the NRI USB Audit Stick to "(start button) exists".

To select the type of output device:

Quick approach:

`= Main menu > E = Settings > Audit module > Configurate printer interface > Start button on printer`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu
5	B	until `Configurate printer interface`	You want to enter submenu CONFIGURATE PRINTER INTERFACE
6	E	1 x	You enter the submenu
7	B	until `Start button on printer`	You want to set the output device type
8	E	1 x	Now you can select the device type
9	A / B	until setting desired	You want to output audit data using a device with/without start button
10	E	1 x	You lock the selected type of output device in memory
11		1 x/2 x	You return to main menu/operating mode

Activating maximum IrDA readout speed (only c² with IrDA interface on coin validator)

If the changer's coin validator is equipped with an IrDA interface and this interface is used to readout audit data, you can set a maximum readout speed of 19,200 Bd in the coin changer.

To select the maximum IrDA readout speed:

Quick approach:

`= Main menu > E = Settings > Audit module > Configurate printer interface > IrDA high speed`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Audit module`	You want to enter submenu AUDIT MODULE
4	E	1 x	You enter the submenu
5	B	until `Configurate printer interface`	You want to enter submenu CONFIGURATE PRINTER INTERFACE
6	E	1 x	You enter the submenu
7	B	until `IrDA high speed`	You want to activate/deactivate the highest readout speed
8	E	1 x	Now you can set the function
9	A/B	until setting desired	You want to read out audit data with 19,200 Bd/at a slower rate
10	E	1 x	You lock the selected readout speed in memory
11		1 x/2 x	You return to main menu/operating mode

10 Basic settings

This chapter describes how to perform basic changer settings, that seldom need to be changed (e.g. for a new installation site):

- Smallest coin value as a basis of calculation for coin values/prices
- Alternative coin value for second currency or as token value
- Currency or calling code
- MDB level
- Mains or battery operation
- Wake-up time
- Write protection for coin changer configuration

Changing smallest coin value (base value)

For the coin changer, the smallest coin value is the reference value for the data management of all programmed coin and token values as well as prices. The values of all accepted coin types/tokens and all prices must be integral multiples of the smallest coin value.

Whenever the smallest coin value is changed in such a way that it is no longer an integral and common divisor, the coin/token values and prices must be changed and adapted accordingly!

To change the smallest coin value:

Quick approach:

`= Main menu > E = Settings > Other settings > Base coin value`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu. The required menu point is already selected
5	E	1 x	You want to change the smallest coin value (BASE COIN VALUE)
6	D / C	until required digit	You highlight the digit to be changed
7	A / B	until required value	This value is to be set
8	*Please repeat steps 6 and 7 to set the other three digits of the smallest coin value, if necessary*		
9	E	1 x	You lock the set value in memory
10		1 x/2 x	You return to main menu/operating mode

Configuring alternative coin value for second currency or as token value

With the alternative coin value you may specify on the one hand the coin value of a second currency and on the other hand the value for a token. Configuring an alternative coin value invalidates the real coin value.

The alternative coin value is only used as token value if the vending machine cannot identify the token ID coming from the coin changer. The alternative coin value does not report a token but a coin.

Conventional token values are configured using the setting menu (cp. separate service manual).

First of all the HENRI setting module must be connected to the coin changer (see section "Connecting HENRI" in Chap. 2 "General information").

To set an alternative coin value:

Quick approach:

A = HENRI main menu > B = Extended functions > D = Channels

	Press key ...	How often?	Effect
1	A	1 x	You enter the HENRI main menu
2	B	1 x	You enter submenu EXTENDED FUNCTIONS
3	D	1 x	You want to set an alternative coin value
4	A/B D/C	until required coin/coin channel	You highlight the coin an alternative value is to be set for
5	E	2 x	Now you can set/change the ALTERNATIVE VALUE
6	D/C	until required digit	You highlight the digit to be changed
7	A/B	until required value	This value is to be set
8	*Please repeat steps 6 and 7 to set the other digits of the alternative value, if necessary.*		
9	E	1 x	You lock the set alternative value in the HENRI memory
10	F	2 x	You want to store the set alternative value in the coin changer?
11	E	1 x	You lock the set alternative value in the coin changer memory
12	F	1 x	You enter the HENRI main menu again
13		1 x/2 x	You return to the c² operating mode/c² main menu

Changing currency/calling code (only c² MDB)

The numeric currency code (ISO 4217) which can be sent, e.g., for the VMC dialogue language is set to the main currency on delivery.

Please use the last three digits of the 4-digit input field to set the 3-digit currency code. The first digit is not part of the currency code and must be set to "1".
Example: euro currency code = 978 > input = 1978

For more information on the currency code please refer to the MDB specification "NAMA document MDB/ICP 2.0" (www.vending.org).

Some vending machines ask for the international country calling code and not for the currency code (ITU E.164, e.g. 0033 for France) (cp. vending machine manual).

To change the currency/calling code:

Quick approach:

`= Main menu > E = Settings > Other settings > Currency code`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Currency code`	You want to change the CURRENCY CODE
6	E	1 x	Now you can change the code
7	D / C	until required digit	You highlight the digit to be changed
8	A / B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the other digits of the currency code, if necessary*		
10	E	1 x	You lock the set code in memory
11		1 x/2 x	You return to main menu/operating mode

Changing MDB level (only c² MDB)

In cases the coin changer is supposed to communicate as MDB level 2 instead of MDB level 3 changer:

Quick approach:

`= Main menu > E = Settings > Other settings > MDB level`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	until `MDB level`	You want to change the MDB LEVEL
6	E	1 x	Now you can change the level
7	A/B	until required level	This level is to be set
8	E	1 x	You lock the selected MDB level in memory
9		1 x/2 x	You return to main menu/operating mode

Selecting mains operation or battery operation (only c² MDB)

Depending on the installation site, MDB coin changers equipped with a battery and a wake-up line, can always be switched to mains or battery operation. For this the changer has two DIL switches accessible when removing the coin cassette:

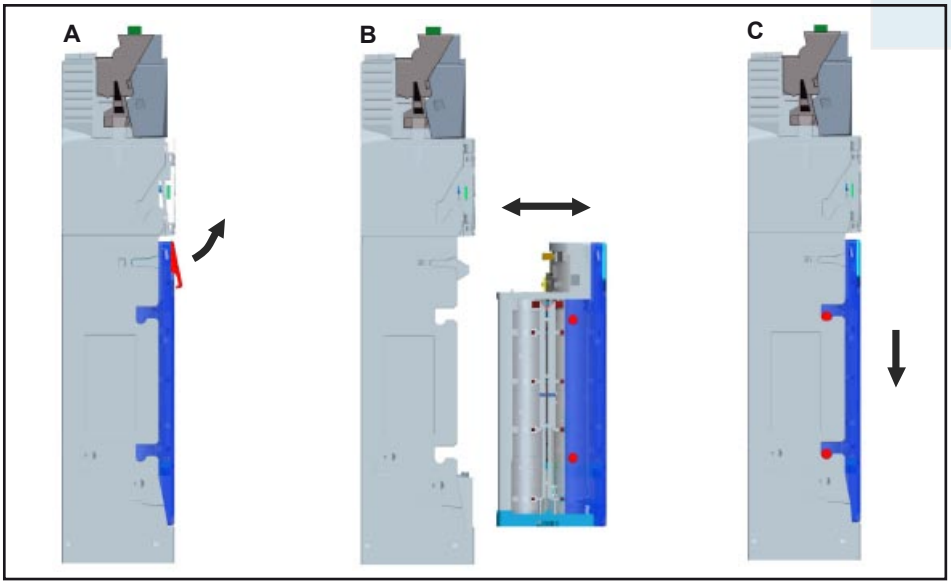


Fig. 4: Removing and reinstalling coin cassette

1 Remove coin cassette:
- Pull latch (Fig. 4, A).
- Pull cassette straight out of the housing guides to the front (Fig. 4, B).

2 For standard mains operation, use a pointed object to push the two DIL switches upward to STANDARD, for battery operation, downward to BATTERY (see Fig. 5 and markings on the coin changer housing).

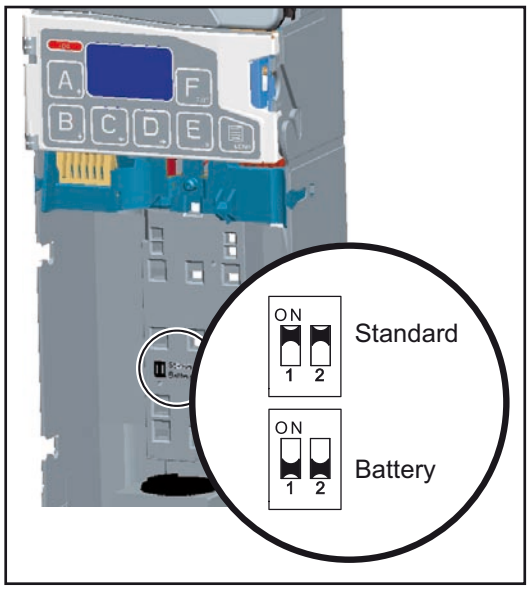


Fig. 5: Switches for mains/battery operation

3 Reinsert coin cassette:
- Insert cassette in upper and lower housing guides (Fig. 4, B).
- Push cassette into the housing.
- Press cassette down and let it engage in the upper and lower housing guides (audible click) (Fig. 4, C).

4 Switch the power off and then on again.
The desired operating mode is activated.

Configuring wake-up time (only c² MDB)

For MDB coin changers running in battery mode and with external wake-up line, a time can be set specifying how long the changer will continue to remain switched on since the last time the vending machine addressed the changer (wake-up time). After the wake-up time has elapsed, the changer switches off automatically.

The wake-up time is set in seconds. Settings under 1 and over 20 will be ignored. In this case, the coin changer will consider the default setting of 4 seconds.

To configure the wake-up time:

Quick approach:

`= Main menu > E = Settings > Other settings > Wake-up time`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu
3	B	until `Other settings`	You want to enter submenu OTHER SETTINGS
4	E	1 x	You enter the submenu
5	B	until `Wake-up time`	You want to change the WAKE-UP TIME
6	E	1 x	Now you can change the time
7	D / C	until required digit	You highlight the digit to be changed
8	A / B	until required value	This value is to be set
9	*Please repeat steps 7 and 8 to set the other digit of the wake-up time, if necessary*		
10	E	1 x	You lock the set time in memory
11		1 x/2 x	You return to main menu/operating mode

Providing coin changer configuration with write protection for BDV machines (only c² BDV)

You may provide the configuration data of the coin changer with a write protection in order that it cannot be overwritten by the BDV vending machine control.

To activate/deactivate the write protection:

Quick approach:

`= Main menu > E = Settings > Operating modes > Write protection for BDV VMC`

	Press key ...	How often?	Effect
1		1 x	You enter the main menu
2	E	1 x	You enter the SETTING menu. The required menu item has already been selected
3	E	1 x	You enter submenu OPERATING MODES
4	B	until `Write protection for BDV VMC`	You want the write protection to be ACTIVE/NOT ACTIVE
5	E	1 x	Now you can set the function
6	A / B	until setting desired	The c² configuration is not to be overwritten/may be overwritten
7	E	1 x	You lock the setting in memory
8		1 x/2 x	You return to main menu/operating mode

11 Batch configuration

If the same settings are to be made for several coin changers of the same series, it is sufficient to

1. configure one changer as required,
2. save this state of settings in the HENRI setting module and then
3. transmit the state of settings from HENRI into the remaining changers to be configured.

Only the data that applies to the coin changer will be stored and transmitted but not the data saved in the coin validator or peripheral equipment. The following settings remain unaffected and may need to be adapted in addition:

- Coin and currency data
- Acceptance bands and coin values

Please note that, whenever you are copying coin changer data from older devices with a smaller range of functions and load this data into a new device, the new functions may need to be adapted, if necessary. In the opposite case, an older device will also not be provided with the additional functions of the new device.

Configuring coin changer master

If you haven't done so already, first of all you have to configure a coin changer so that its configuration can be used as clone for the other coin changers to be configured (see Chap. 3 "Presettings" to Chap. 10 "Basic settings").

Storing desired configuration in HENRI

First of all connect the HENRI setting module to the coin changer with the configuration to be cloned (see section "Connecting HENRI" in Chap. 2 "General information").

Quick approach:

= HENRI main menu > B = Extended functions > C = Clone > A = c²->HENRI

	Press key ...	How often?	Effect
1		1 x	You enter the HENRI main menu
2	B	1 x	You enter submenu EXTENDED FUNCTIONS
3	C	1 x	You want the configuration of the coin changer connected to be saved for batch configuration in HENRI
4	A	1 x	Data is being transferred to HENRI. Following the 100% display message:
5	F	1 x	You enter submenu CLONE again

Transferring desired configuration to coin changers

First of all connect the HENRI setting module to the coin changer to be configured with the clone (see section "Connecting HENRI" in Chap. 2 "General information").

Quick approach:

= HENRI main menu > B = Extended functions > C = Clone > B = HENRI->c²

	Press key ...	How often?	Effect
1		1 x	You enter the HENRI main menu
2	B	1 x	You enter submenu EXTENDED FUNCTIONS
3	C	1 x	You want the c² configuration stored in HENRI to be transferred to the coin changer connected
4	B	1 x	The stored configuration file(s) is/are displayed
5	E	1 x	Data is being transferred to the coin changer. Following the 100% display message:
6	F	1 x	You enter submenu CLONE again
7	F	2 x	You enter the HENR main menu again
8		1 x/2 x	You return to the c² operating mode/c² main menu

Please repeat cloning for all coin changers to be configured.

Adapting individual settings

Finally we recommend random checks of the data cloned and that individual settings of the changers or the coin and currency data is adapted, if necessary.

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