**Technical Documentation**

NRI

A Crane Co. Company

# Service tool
# HENRI

**Short reference guide**

**for proceeding internal HENRI functions**

RoHS
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# Tabel of contents

# 1        About this short reference guide

This short reference guide provides all information about

- operating elements and menu structure of the HENRI service tool.
- connection and start-up of the HENRI service tool on an NRI coin payment system.
- basic settings and service work on the HENRI service tool.
- the basic operation of the HENRI service tool in the G-46 and E-66/ A-66 configuration mode.

**This short reference guide does not describe the entire functional range of the service tool, but rather the internal HENRI functions. In order to be able to use the service tool's entire functional range safely and to adjust all possible settings, all short reference guides for the HENRI service tool, the NRI coin changer currenza c² and for a G-46 or E-66/A-66 configuration the G-55.0460 manual for the old service tool must be read carefully (PDF download at www.nri24.com).**

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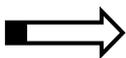
At the beginning of a chapter you will find a short "guide", which summarises the content of the chapter.

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

DISPLAY TEXTS are set in small capitals.

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

[**1/2**] Reference to a figure. The number before the slash refers to the figure number, the number behind the slash to the item number within the figure.

## Additional technical documentationen

Apart from the short reference guide you already have there is further documentation for the service tool and the NRI coin changers. All product descriptions are available in a compressed PDF format at www.nri24.com (→ Download).

# 2 About HENRI

The HENRI service tool is used to operate, diagnose and configure the NRI coin changers currenza $c^2$, G-46.F4xxx, and E-66/A-66 on site at the machine. It reads out the programmed device data of the connected changer and displays them on its display for control or configuration purposes.

Using HENRI you can:

- operate, configure NRI coin changers
- inspect optional audit data of NRI coin changers
- perform error diagnostics on NRI coin changers
- update firmware of NRI coin changers
- read out statistical data of the coin changer currenza $c^2$

*This short reference guide only describes the general operation and proceeding of internal HENRI functions (cp. further manuals).*

## HENRI features

- One configuration tool for the NRI changers currenza $c^2$, G-46.F4xxx and E-66/A-66 with different vending machine interfaces
- Simple connection on site at the machine using 8-pole RJ-45 interface
- Can be used immediately as a plug-and-play solution
- Diagnostics options by means of status and error messages being displayed
- Display of all audit data (optional) in service cases
- Useful service functions

## Scope of delivery

In addition to the HENRI service tool you are supplied with a USB cable.

## Accessories

The following accessories can be ordered for the HENRI service tool:

- WinSPT basic kit (MDB)
    - with EURO plug (ordering code 24688)
    - with USA plug (ordering code 24854)
- WinSPT accessory kit
    - BDV/Executive (ordering code 26218)
    - JVI/VCCS (ordering code 26215)
- SIM card (ordering code 32845)
    - for automatic $c^2$ data block & firmware updates
    - as licence for currenza heartbeat PC configuration software

# 3      Safety instructions

Before operating the device for the first time, please read through these short reference guide carefully at least once, and most importantly the safety instructions.This is to ensure you have understood the contents of these instructions as well as how to operate the device.

## Proper use

The HENRI service tool is used for operation, diagnostics, configuration and general service work on the NRI coin changers currenza c$^2$, G-46. F4xxx and E-66/A-66. Only use the service tool for this purpose. Under no circumstances can the manufacturer be held liable for any damage or loss resulting from improper use of the device.

The service tool has been constructed in compliance with the state of the art and the recognised safety regulations. Nevertheless this equipment can be a source of danger. Therefore please observe the following safety regulations.

## Protecting yourself and equipment

The service tool may only be used, if the device and connecting cable are not damaged.

Only use the service tool according to proper use. Under no circumstances can the manufacturer be held liable for any damage or loss resulting from improper use of the device.

Please make sure that after each configuration of an NRI changer the label of the changer has been adapted to the new settings or the new settings are written down in another way for the workshop and the installation place.

The coin validator, changer and HENRI PCBs are fitted with components which may be damaged beyond repair by electrostatic discharge. Please observe the handling instructions for components exposed to the risk of electrostatic discharge.

Do not alter the construction of the device.

Keep water and other liquids away from the device.

If the device is no longer required, please dispose of it correctly.

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

# 4 Design
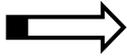
This chapter describes:
- design and operating elements of the HENRI service tool
- the functions of the operating keys of the HENRI service tool
- the menu structure of the HENRI service tool

## Operating elements



**Fig. 1:** Operating elements

**1** General menu key HENRI
(for general functions)

**2** $c^2$ menu key MENU
(for internal $c^2$ functions)

**3** Slot – SIM card

**4** USB port – PC

**5** Multifunction keys A–F

**6** Display

**7** Connecting cable (RJ-45 plug (8-pole)) –
payment system

To operate and service the coin changer connected, the service tool is equipped with a display [**1**/**6**], six multifunction keys [**1**/**5**] and two menu keys [**1**/**1, 2**]. It can be connected to an NRI payment system (e.g. coin changer) using the connecting cable installed with RJ-45 plug [**1**/**7**]. For, e.g., firmware updates the service tool can be connected to a PC using the USB port [**1**/**4**].

# Functions of the operating keys

The HENRI keypad [**1**/**1, 2, 5**] can be divided in three groups:

- Multifunction keys **A** to **F** [**1**/**5**]
- $c^2$ menu key **MENU** [**1**/**2**]
- General menu key **HENRI** [**1**/**1**]

## Multifunction keys A to F

The multifunction keys **A** to **F** [**1**/**5**] are arranged around the display [**1**/**6**]. The functions which can proceed using the keys depend on the:

- payment system connected
  (currenza $c^2$ or other NRI payment systems)
- active menu
  (for internal $c^2$ or general functions)

## $c^2$ menu key MENU

Pressing the **MENU** key [**1**/**2**] you enter the main menu for operation, configuration and service work on the coin changer currenza $c^2$. Using this main menu you are able to select the internal $c^2$ functions.

*The menu is only available if HENRI is connected to a currenza $c^2$. If not, the key has no function.*

*This short reference guide only describes the general operation and proceeding of internal HENRI functions (cp. further manuals).*

## General menu key HENRI

Pressing the **HENRI** key [**1**/**1**] you enter the main menu for

- work on the NRI coin changer currenza $c^2$ which require an external data media (e.g. reading out statistical data, updating firmware).
- basic settings and service work on the HENRI service tool.
- service work and configuration of the NRI coin changers G-46.F4xxx and E-66/A-66.

## Navigating in the menus

HENRI distinguishes between functions that are proceeded in the coin changer currenza c² and functions that are proceeded either in other NRI payment systems or in the HENRI itself. Accordingly there are two independent menus.

*This short reference guide only describes the general operation and proceeding of internal HENRI functions (cp. further manuals).*

### Main menu currenza c²

In the main menu for the coin changer currenza c² you select the submenu required by pressing the multifunction key with the character **A**, **B**, **C**, **D**, **E** or **F** on the left-hand side of the menu.

In the submenu you navigate with the
- down-arrow or up-arrow keys to select a certain menu item.
- OK key to enter the menu selected.
- Exit key to return to the superordinate menu.
- **MENU** key to switch over to the c² main menu.

### General main menu HENRI

In the general main menu HENRI you navigate with the
- multifunction keys **A**, **B**, **C**, **D**, **E** or **F** to select a menu, submenu and menu item.
- OK key to enter the (sub)menu selected.
- Exit key to return to the superordinate menu.

## Switching between the main menus

While you are in one of the both main menus you cannot switch over to the other main menu direct by pressing the appropriate menu key.

*If you try to switch over direct to the other menu, the connection between changer and service tool will be interrupted. In this case pull the HENRI plug out of the c² socket and wait for approx. 30 sec. until a new connection has been set up.*

### From the general HENRI main menu to the c² main menu

- With theExit key [F] back to the HENRI main menu
- With the menu key **MENU** to the c² start screen first and then
- With the menu key **MENU** to the c² main menu

### From the c² main menu to the general HENRI main menu

- With the Exit key [F] back to the c² main menu
- With the menu key **MENU** to the c² start screen
- With the menu key **HENRI** to the HENRI main menu

## Display help texts

The bottom display line is intended for help texts and offers you key instructions for possible courses of action, e.g. leaving a (sub)menu.

# 5    Connection

The HENRI service tool can either be connected to the payment system on site in the vending machine or in the workshop by using a tester.

## Connecting HENRI on site

In order to connect HENRI to a coin changer, plug the RJ-45 connector (western plug) of the connecting cable into the socket on the top right of the coin changer (see Fig. 2).
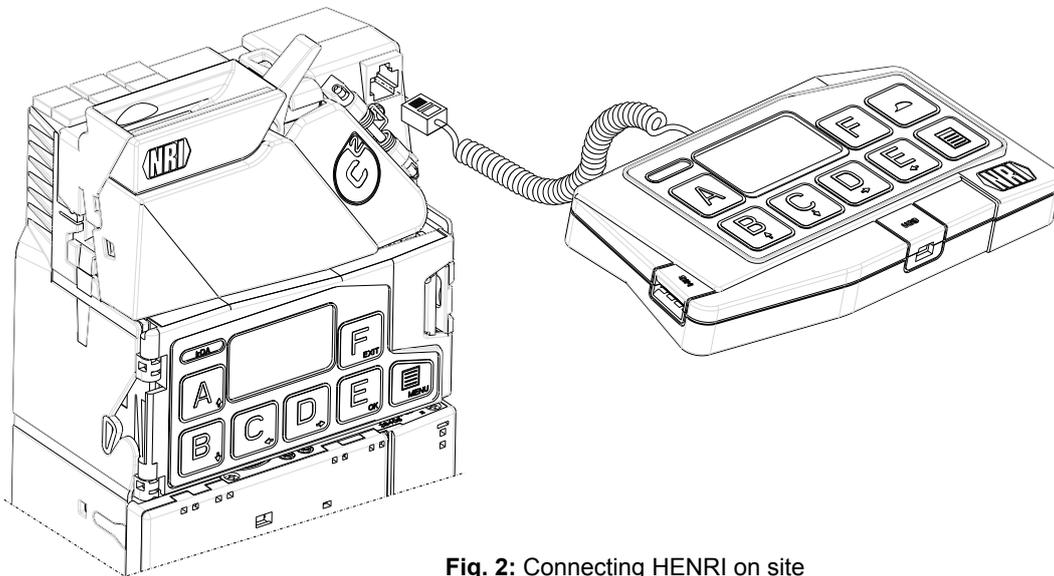
**Fig. 2:** Connecting HENRI on site

*As HENRI identifies the connected payment system automatically the display shows device specific data after the connection with the payment system has been established.*

## Connecting HENRI in the workshop

If the NRI payment system has been removed from the vending machine for, e.g., update purposes, it has to be powered by a tester. The tester of the WinSPT PC test station along with the appropriate power pack and cable are used to supply the payment system with voltage (see Fig. 3):
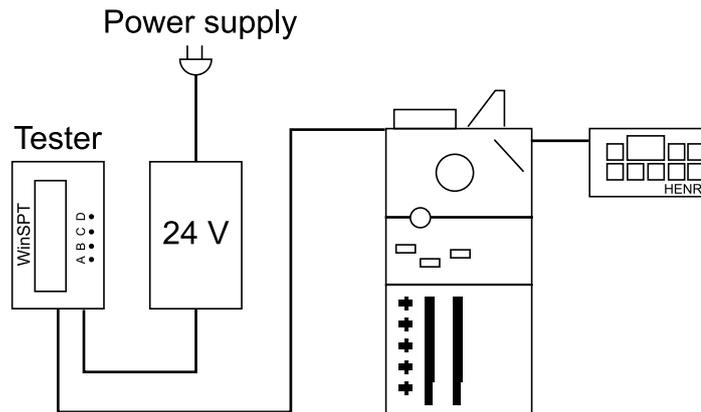


**Fig. 3:** Connecting HENRI in the workshop

*Using the complete WinSPT PC test station all of the vending machine functions can be simulated in order to test a serial NRI payment system. For further information regarding the WinSPT PC test station and all ordering codes please refer to our product accessory pages on the internet (www.nri24.com).*

**1** If necessary, connect 24V-power pack to appropriate power cable.
**2** Connect WinSPT tester to power pack using the DC interface.
**3** Connect WinSPT tester to, e.g., coin changer using the MDB interface and the machine connecting cable (if necessary, by means of the adapter cables which are part of the accessory kits for other machine interfaces).
**4** Connect the power pack to the power supply using the power cable. The display of the WinSPT tester shows "SPT (C)NRI vx.x_".
**5** Plug the HENRI connector into the socket on the top right of the coin changer (see Fig. 2).

*As HENRI identifies the connected payment system automatically the display shows device specific data after the connection with the payment system has been established.*

## Start screens when connecting a ...

HENRI identifies the payment system connected automatically. Thus the start screen is device-dependent.

### ... currenza c²

If HENRI is connected to a currenza c², HENRI displays two start screens:

 → 
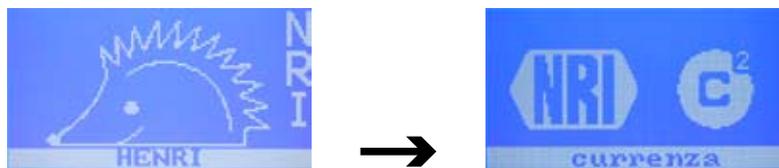
and switches then over to the c² mode automatically in order to display the selected status message, if there is no error, e.g.:
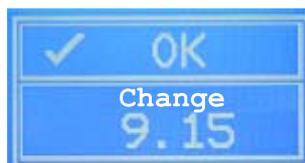


### ... E-66/A-66

If HENRI is connected to an E-66/A-66, HENRI displays two start screens:

 → 
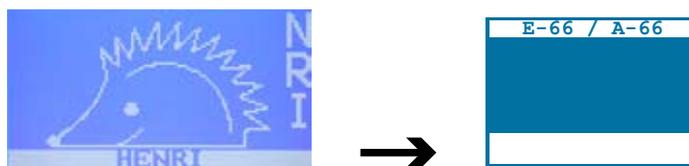
### ... G-46

If HENRI is connected to a G-46, HENRI displays two start screens:

 →
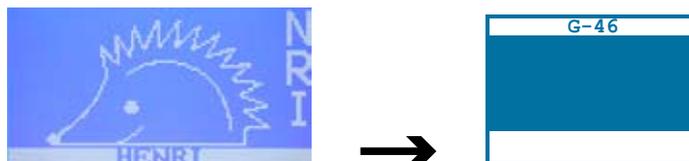
# 6      Basic settings
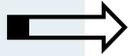
This chapter describes how to adjust basic settings, which HENRI saves as presettings for all further applications:

- Menu language
- System time
- Display contrast
- Baud rate

## Setting menu language

HENRI supports the following languages:

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

Default language is English when HENRI is delivered. If another language is to be set:

**1** Press **HENRI** key.
You enter the main menu:



**2** Press **C** key to open the SETTINGS menu:



**3** Press **A** key to open submenu LANGUAGE.
**4** Press **A** or **B** key to select the language.
**5** Use **EXIT** key to return to the main menu.

## Setting date and time

To set time and date for HENRI:

*If HENRI has already been connected to a PC, e.g., for a firmware update, HENRI has already saved the PC system time. In this case time setting is not necessary.*

**1** Press **HENRI** key.
You enter the main menu:



**2** Press **C** key to open the SETTINGS menu:



**3** Press **C** key again to open submenu DATE/TIME.

**4** Set date (format: day/month/year) and time
(format: hour:minute:second):
  • use **D** or **C** key (reight arrow/left arrow) to mark data to be changed
  • use **A** key (up-arrow) to increase data selected.
  • use **B** key (down-arrow) to decrease data selected.

**5** Use **EXIT** key to return to the main menu.

## Altering display contrast

The default setting of the display contrast is "46". To alter the contrast:

**1** Press **HENRI** key.
You enter the main menu:



**2** Press **C** key to open the SETTINGS menu:



**3** Press **B** key to open submenu CONTRAST.

**4** • Use **A** key (up-arrow) to increase the contrast.
 • Use **B** key (down-arrow) to decrease the contrast.

**5** Use **EXIT** key to return to the main menu.

## Setting baud rate

By default the baud rate is set to 57600. In case the baud rate must be adapted manually, e.g., for a coin changer firmware update:

**1** Press **HENRI** key.
You enter the main menu:



**2** Press **A** key to open the UPDATE MENU:



**3** Press **E** key to open submenu CC BAUD RATE:



**4** Use **A/B/C** key to select the baud rate.
**5** Use **EXIT** key to return to the main menu.

# 7      Service work
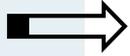
This chapter describes how to service the service tool:
- Function tests
- Firmware update

## Function tests

You can test either the service tool's keys, system time and memory chips or in addition all HENRI interfaces as well as the $c^2$ vending machine interface.

### Testing keys, system time, memory

To test the operational capability of the service tool:

**1** Connect HENRI to a voltage source (see Chap. 5 "Connection").
In case HENRI is connected to a PC, it switches over to the main menu automatically, if not

**2** Press **HENRI** key.
You enter the main menu:



**3** Press **B** key to open the menu EXTENDED FUNCTIONS:



**4** Press **B** key again to open submenu FUNCTION TEST:

**5** Press **A** key to start HENRI function test:

- Keys after having pressed the relevant key **A** to **F**, **HENRI**, **MENU**
- System time
- EPROM
- Flash memory

The results of the function tests are displayed with:

- OK if HENRI components are free from defects
- ERR if at least one component is defective

*In this case please contact your service technician.*

**6** Use **EXIT** key to return to the main menu.

## Testing keys, system time, memory and HENRI/c² interfaces

To additionally test the HENRI interfaces as well as the currenza c² vending machine interface:

**1** Connect HENRI to a voltage source (see Chap. 5 "Connection").
In case HENRI is connected to a PC, it switches over to the main menu automatically, if not

**2** Press **HENRI** key.
You enter the main menu:



**3** Press **B** key to open the menu EXTENDED FUNCTIONS:



**4** Press **B** key again to open submenu FUNCTION TEST:

**5** Press **B** key to start HENRI and interface function test:
- Keys after having pressed the relevant key **A** to **F**, **HENRI**, **MENU**
- System time
- EPROM
- Flash memory
- SIM card slot
- currenza c² vending machine interface (CX2 slave, CX2 master)
- RJ-45 interface
- USB port

The results of the function tests are displayed with:
- OK if HENRI components are free from defects
- ERR if at least one component is defective

*In this case please contact your service technician.*

**6** Use **EXIT** key to return to the main menu.

# Firmware update

Before updating the firmware (FW) you can call up the current FW version. If the FW is finally supposed to be updated, it is loaded from the hard disc of your PC into the service tool.

## Calling up current firmware version

To determine the current HENRI FW version:

**1** Press **HENRI** key.
You enter the main menu:



**2** Press **C** key to open the SETTINGS menu:



**3** Press **D** key to call up the current FW version of the service tool in submenu FIRMWARE no.: SxxBxx, 9200382xxxx.

**4** Use **EXIT** key to return to the main menu.

## Updating firmware

For updating the FW you will require the PC application HenriFlash which you can download along with the current FW from the NRI website (www.nri24.com) using your customer password.

**Downloading the new firmware and FW updating PC application from the internet**

HenriFlash can be downloaded from the NRI website (www.nri24.com, Internal) either as zipped file along with the latest FW or as .exe file using your customer password.

> *Should you have any further questions, please do not hestitate contacting our sales staff at any time.*

**Installing HenriFlash**

To install the program onto the hard disc of your PC:

**1** If necessary, unpack zipped file.
In addition to HenriFlash this directory also contains the HENRI firmware "xxx.hen"

> *The directory may also contain files with the extension .cxb/.mot./dsp. These files represent the current FW for the currenza $c^2$ coin changer (cp. separate $c^2$ service manual).*

**2** Sart .exe file and follow the installation wizard.
HenriFlash is installed.

**Installing new firmware in HENRI tool/Uploading new $c^2$ firmware in HENRI tool**

There are two aspects to consider, using the HenriFlash application

**A** Installing a new HENRI firmware itself or

**B** Loading the currenza $c^2$ firmware in the HENRI tool.

**1** Launch the HenriFlash application.
The start screen along with a selection box will come up.

**2** Select the firmware required:

**A** Check the **FLASH HENRI** box if the HENRI firmware needs to be updated. Conversely,

**B** check the box for the corresponding coin changer firmware if the coin changer firmware has to be loaded in HENRI and updated later on (cp. $c^2$ service manual).
Individual or all coin changer firmware (**GET ALL UPDATES**) can be checked.
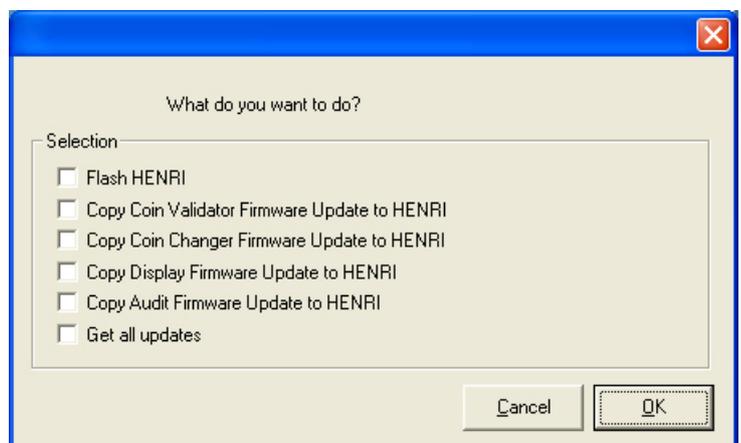
What do you want to do?

Selection
- ☐ Flash HENRI
- ☐ Copy Coin Validator Firmware Update to HENRI
- ☐ Copy Coin Changer Firmware Update to HENRI
- ☐ Copy Display Firmware Update to HENRI
- ☐ Copy Audit Firmware Update to HENRI
- ☐ Get all updates

Cancel     OK

**3** Click the **OK** button.

*Now you can set the menu language required by selecting the LAN-GUAGE menu.*



**4** In the left field FILE SELECTION and in the line of the appropriate firmware, enter the path of the directory started during installation and firmware file using the folder button.
After having selected all firmware files required, HenriFlash is ready for a firmware update or simple upload.

**5** First, connect the USB cable provided to a PC USB port. Then:

**A** If the HENRI firmware is to be updated, (INSTALLATION)
  • Press and hold the **MENU** button on the HENRI tool while connecting the free end of the USB cable to HENRI.
  • Wait until the HENRI tool has started the bootloader mode.
  • Release the **MENU** button.

**B** If c$^2$ coin changer firmware is to be loaded, (SIMPLE STORAGE)
  • Connect the free end of the USB cable to HENRI
    The HENRI tool shows the main menu.

**6** Click on the **UPDATE** button on the HenriFlash screen to start the firmware installation/upload.
HenriFlash displays the data transfer status in the right-hand OUTPUT field.

*Please refer to the c$^2$ service manual to install new c$^2$ firmware.*

# 8　　G-46/E-66/A-66 Configuration
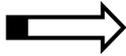
This chapter provides you with all information you need to configure a G-46 or E-66/A-66 coin changer using the new HENRI service tool and the manual for the old setting module G-55.0460:

• The basics

• Key functions in the G-46/E-66/A-66 mode

• Accessing Dis menu

• How to return to the G-46/E-66/A-66 mode, if I had pressed the HENRI-key by mistake?

## The basics

The old G-46/E-66/A-66 setting module G-55.0460 has been displaced by the new service tool HENRI. As the HENRI tool, in the first instance, has been developed to operate and maintain the $c^2$ coin changers, HENRI provides an extra G-46/E-66/A-66 mode offering the same menu structure and navigation as the old setting module. The only difference in operating the tool is the key functions:

## Key functions in the G-46/E-66/A-66 mode

| G-55.0460 | HENRI |
|:---:|:---:|
| F | F |
| E | E |
| + | A or D |
| – | B or C |

So if you press the ↑-key instead of the ⊞-key and the ↓-key instead of the ⊟-key, you can just follow the familiar function descriptions and instructions in the manual for the old setting module (www.nri24.com → Download).

## Accessing Dis menu

Depending on whether you want to start configuring the coin changer directly or you made basic settings using the HENRI main menu beforehand the way to the Dis menu can differ:

**1a** Connect HENRI to the coin changer (cp. Chap. 5 "Connection").
HENRI changes to the G-46/E-66/A-66 mode automatically:

| G-46 | | E-66 / A-66 |
|---|---|---|
| | or | |

**1b** • Press **HENRI** key.
You enter the main menu:

```
        HENRI menu
A←  FW update
B←  Exten. funkt.
C←  Settings
D←  Changer modes
E←  DB update
MENU← CC menu
```
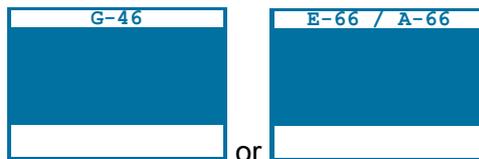
• Press ⬚-key to open the CHANGER MODES:

```
   Changer modes
A←  c²
B←  E/A-66/G-46
C←  Palm settings

EXIT←   Exit
```
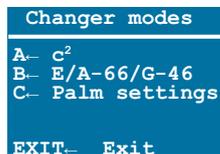
• Press ⬚-key to access the G-46/E-66-/A-66 mode:
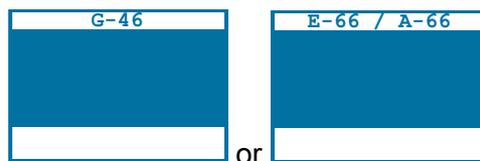
| G-46 | | E-66 / A-66 |
|---|---|---|
| | or | |

**2** Proceed as normal and press the ⬚-key
(if necessary hold down for 2s).
You enter the Dis menu:

| G-46 | | E-66 / A-66 |
|---|---|---|
| **Dis** | | **Dis** |
| Audit | or | Audit |
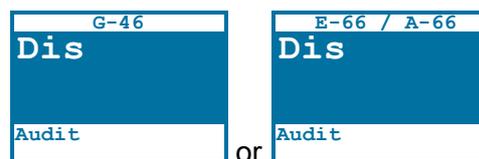
**3** Follow the instructions in the manual for the old setting module.

## How to return to the G-46/E-66/A-66 mode, if I had pressed the HENRI key by mistake?

If you pressed the HENRI-key by mistake, you enter either the

**A** main menu or the

**B** CHANGER MODES menu.

To return to the G-46/E-66/A-66 mode, just press (the ⬚-key and then) the ⬚-key:

**A**

| HENRI menu |
| --- |
| A← FW update |
| B← Exten. funkt. |
| C← Settings |
| D← Changer modes |
| E← DB update |
| MENU← CC menu |

→

| Changer modes |
| --- |
| A← c² |
| B← E/A-66/G-46 |
| C← Palm settings |
| |
| EXIT← Exit |

→

| E-66 / A-66 |
| --- |
| |
| |

**B**

| Changer modes |
| --- |
| A← c² |
| B← E/A-66/G-46 |
| C← Palm settings |
| |
| EXIT← Exit |

→

| E-66 / A-66 |
| --- |
| |
| |
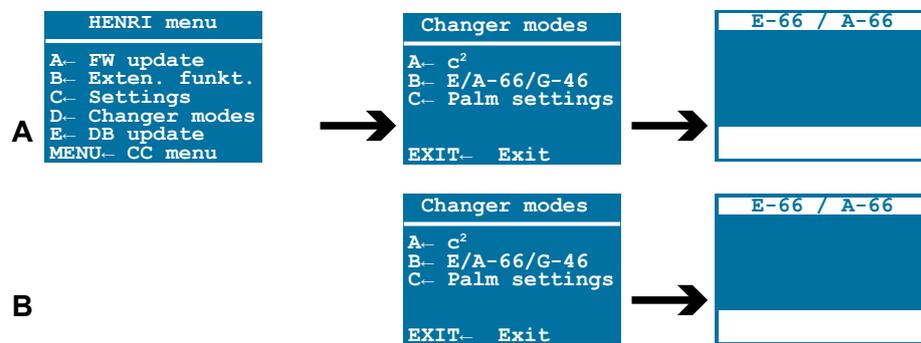
# 9 Technical data
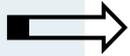
This chapter provides
- all relevant device data
- information about the CE certification

## Device data

| | |
|---|---|
| **Supply voltage** | Via USB or RJ-45 interface |
| **Temperature range** | 10°C to 50°C |
| **Rel. humidity** | Up to 90% |
| **Interfaces** | PC:                      USB<br>NRI coin changer: RJ-45 |
| **Device dimensions** | Height: 157mm (without cable)<br>Width:    83mm (without cable)<br>Depth:   21mm |
| **Connecting cable** | Length: approx. 100cm |
| **Mark of conformity** | CE (see next section) |

## CE certification

The CE certificate (CE = Communautés Européennes) confirms that our products comply with specified basic requirements of the applicable directive. The CE certificate is not a quality assurance certificate in terms of the quality expected by the manufacturer but only in terms of the quality demanded legally. It is a pure administrative certificate and is intended only as proof of compliance with the directives for the monitoring authorities and not directed at clients or final customers.

Which directives were applied can be seen in the declaration of conformity. The manufacturer must keep this declaration available for the monitoring authorities only (for a minimum period of 10 years after the last product has been introduced to the market). However, upon request we can provide copies of this declaration for our customers.

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

1. The EMC Directive (2004/108/EC)
   for devices which cause electromagnetic interference or are interfered with by such.

2. The Low Voltage Directive (2006/95/EC)
   for electrical equipment that is used with a nominal voltage of 50–1000 V AC and 75–1500 V DC.

3. The CE Certificate Labelling Directive (93/68/EEC)
   Modification directive regarding the application and use of CE labels.

4. The directive on Radio Equipment and Telecommunications Terminal Equipment (1999/5/EC).