



The test software for payment systems with serial interface

WinSPT

Serial Payment system Tester

Operating instructions for the PC test station

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1 General information

This chapter is intended to provide you with an initial overview regarding the advantages and options of the test software "WinSPT". The first section, however, is designed to help you navigate easily within these operating instructions.

General information about these instructions

These instructions describe the necessary steps that have to be taken to install the software and the device environment and they also describe how to apply the software to all

- MDB changers, bill validators and cashless payment systems,
- BDV/Simplex V changers,
- JVI/VCCS changers and
- S1 and cctalk coin validators.

On the one hand, since WinSPT (**S**erial **P**ayment **S**ystem **T**ester) can be used for a function test of MDB, S1 and cctalk slave devices in the workshop, but on the other hand, it can also be used for recording the communication between the vending machine and connected peripheral units in the field, these operating instructions have been divided into two separate parts A and B, whereby Part A describes the function test and Part B the recording of the data transmission.

The index and glossary reduce the search for specific explanations.

These operating instructions are intended for service technicians, field staff employees and developers and presuppose sound knowledge of MDB, S1, BDV/Simplex V, JVI/VCCS or cctalk devices as well as sound knowledge of the respective protocol (see also "NAMA document MDB/ICP 2.0" at www.vending.org; "NRI S1 specification for the G-40 S1", which will be made available to you upon your request; and "cctalk Serial Communication Protocol, Generic Specification 4.2" at www.cctalk.org).

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

- **Safety instructions**, which must be observed in order to protect operators and equipment, have been written in bold and given the pictogram .
- Special *notes* that are intended to help you use the software have been written in italics and provided with the pictogram .
- Requests to perform an action are numbered in another typeface.
- At the beginning of a chapter you will find a short "guide", which summarizes the contents of the chapter.

To facilitate your testing of NRI slave devices with the help of the WinSPT software, these operating instructions include references to the separate documentations for NRI changers and coin validators:

- "Changer series PROTEUS E-66/CENTAUR A-66"
- "Changer series G-46.F4000"
- "Electronic coin validator G-13.mft MDB/S1 (from model /4 onwards)"
- "Electronic coin validator G-13.mft cctalk (from model /4 onwards)"
- "Electronic coin validator G-18.mft" (PART B)
- "Electronic coin validator G-40 S1 (G-40.6800,G-40.7800,G-40.8800)"
- "Electronic coin validator G-40.F500" (S1)
- "Electronic coin validator G-40 cctalk (G-40.6200,G-40.7200,G-40.8200)"



If these documentations are not yet available to you at the present time, you can download them at any time from the NRI homepage (www.nri.de) in a compressed PDF format.

The documentations for the respective protocol of the serial data transmission could be of further help:

- "NAMA document MDB/ICP 2.0" (www.vending.org)
- "cctalk Serial Communication Protocol, Generic Specification 4.2" (www.cctalk.org)
- "Specification of the electronic coin validator G-40. S1 serial interface" (available from NRI upon request)

General information about WinSPT software

The software WinSPT (**S**erial **P**ayment **S**ystem **T**ester) is used to diagnose MDB changers/bill validators/cashless payment systems and S1/cctalk coin validators as well as to record the exchange of data between the vending machine and the connected MDB/S1, BDV/Simplex V, cctalk and JVI/VCCS peripheral units.

WinSPT also gives you the opportunity of being able to test and adjust the new NRI MDB changers in detail. These diagnostics and adjustments are described in separate instructions, since they refer exclusively to NRI devices.

WinSPT offers the following advantages:

- One software program for different serial peripheral units
- Simple installation from the CD-ROM and fast software updates from the Internet via the NRI homepage (www.nri.de)
- User-friendly navigation features based on Windows system
- Vending machine simulation with integrated slave devices
- Changer simulation with representation of master-slave communication
- Bill validator simulation with representation of master-slave communication
- Simulation of a cashless payment system with representation of master-slave communication
- Coin validator simulation with representation of master-slave communication
- Recording of master-slave communication with response times according to MDB/S1, BDV/Simplex V, cctalk and JVI/VCCS protocol
- Extensive function test of new NRI MDB changers (see separate instructions)
- Adjustment of all channel-independent device functions of new NRI MDB changers (see separate instructions)

Scope of delivery

- Test software WinSPT
- Tester G-19.0654
- MDB Y connecting cable
- 24 V power pack with power cable (plus international adapter)
- PC connecting cable (USB)

Accessories for ...

If you do not only want to check MDB changers/coin validators, bill validators or cashless MDB payment systems, but also payment systems with other vending machine interfaces, you will need the following accessories:

... BDV/Simplex V changers

BDV/Simplex V connecting cables (ordering code 26218):

- BDV Y connecting cable for simulation + Simplex V adapter cable
- BDV Y connecting cable for recording + Simplex V adapter cable

... JVI/VCCS changers

JVI/VCCS Y connecting cable for recording (ordering code 26215)

... S1 and cctalk coin validators

S1/cctalk accessory kit (ordering code 26198):

- 12 V power pack (with international adapters)
- cctalk Y connecting cable
- S1 adapter cable for simulation
- S1 adapter cable for recording

System requirements

The WinSPT software specifies the following minimum hardware and software requirements:

Operating system Windows 98/NT/2000/XP (not CE)

RAM of at least 32 MB

CD-ROM drive

Graphic resolution 800 x 600 dpi min./high color

Serial COM or USB interface



The use of the WinSPT program and the explanations in these instructions require sound knowledge of the Windows operating system on the part of the user.

Options

If the NRI changers or coin validators are not only to be checked but also to be configured, or if the device data is to be updated by means of a data block download, you will receive from NRI the PC configuration software "WinEMP" for the workshop or the Palm configuration software "PalmEMP" and "PalmE66/A66" or "PalmG46" for a mobile Palm handheld.

The programs identify the connected changer/coin validator and the device's own data and present this data on the screen of your PC or on the Palm handheld display for verification or configuration purposes.

You will find more information on our Internet page at www.nri.de.

2 Safety instructions

Before installing the program for the first time, please read these operating instructions carefully at least once.



The printed circuit boards of the devices to be tested are equipped with components that could be damaged beyond repair by electrostatic discharge. Please observe the handling instructions for components exposed to the risk of electrostatic discharge.

We reserve the right to make technical software modifications that are not included in these instructions.



Using the WinSPT software, you will also be able to test and adjust the new NRI MDB changers in detail. These tests and adjustments are described in separate instructions and not in these instructions, since they refer exclusively to NRI devices.

3 Two areas of application

WinSPT can either be used to check the functions of MDB, S1 and cctalk slave devices in the workshop or to record the communication between the vending machine and connected MDB/S1, BDV/Simplex V, cctalk and JVI/VCCS peripheral units in the field.

Since the use of the software and the connection of the device environment differ fundamentally from each other, the two areas of application are described in two separate parts in these operating instructions:

Check slave devices

See Part A of these instructions.

Record master-slave communication

See Part B of these instructions.

4 Menu structure and general functions

Before the installation and the actual software application are described in the next chapters, the general menu structure and general operating functions are listed below to help you to find your way within the program and to provide you with a rough overview of the most important options.

The way to the most important functions

After starting the program you are taken directly to the main menu. From the main menu, you can get to all program functions.



You will find a list of these functions on the next page:

Menu

Set menu language

Manufacturer and software version

Show and hide help texts in status bar

Select/search for serial interface

Presettings for simulators

Presettings for data recording (monitor)

Test MDB devices, record data transmission
Record BDV/Simplex V data transmission
Test cctalk devices, record data transmission
Test S1 devices, record data transmission
Record JVI/VCCS data transmission

Check E-66/A-66/G-46.F4000 functions (only MDB)
(see separate instructions)

Configure E-66/A-66/G-46.F4000 functions (only MDB)
(see separate instructions)

Exit program

Function

LANGUAGE/SPRACHE → DEUTSCH/ENGLISH

HELP → ABOUT WINSPT

VIEW → STATUS BAR

**INTERFACE → DESIRED PORT/
SEARCHFORDEVICE**

SETTINGS → ... SIMULATOR

SETTINGS → ... MONITOR

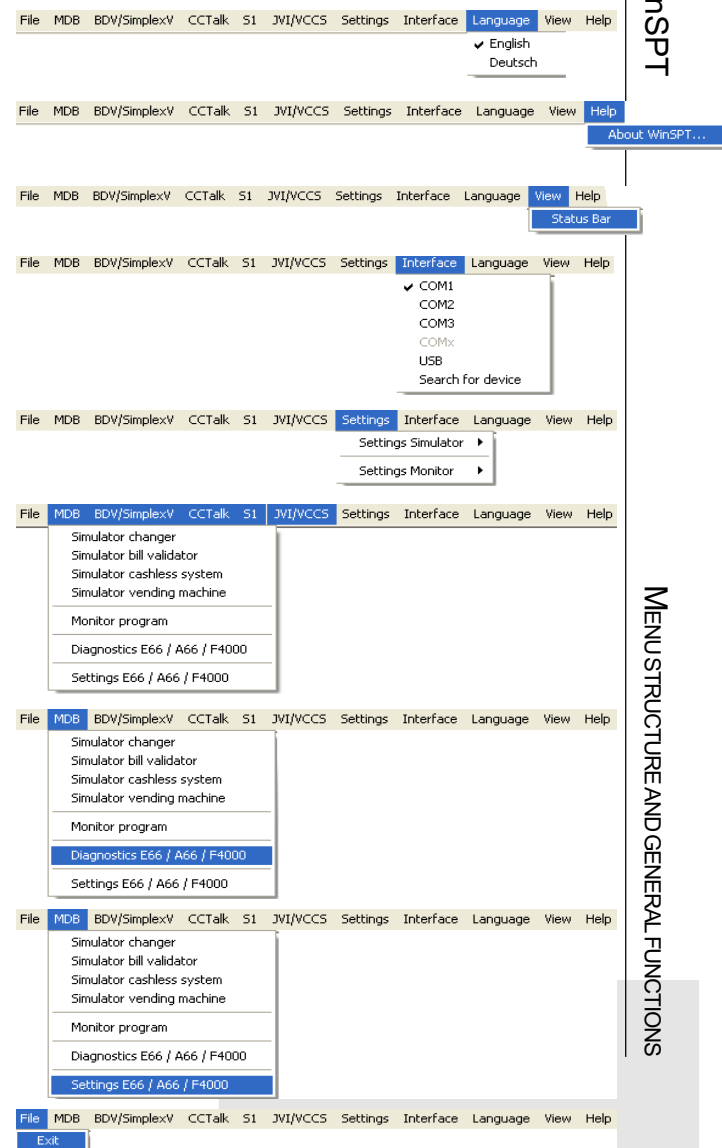
MDB → DESIRED FUNCTION
BDV/SIMPLEX V → MONITOR PROGRAM
CCTALK → DESIRED FUNCTION
S1 → DESIRED FUNCTION
JVI/VCCS → MONITOR PROGRAM

MDB → DIAGNOSTICS ...

MDB → SETTINGS ...

FILE → EXIT

Navigation



WinSPT

MENU STRUCTURE AND GENERAL FUNCTIONS

General operating functions

In this section, simple or repeatedly occurring functions are to be explained once. These functions will not be mentioned or explained again for the instructions included in the following chapters.

- Using the menu item **HELP**, in the top right-hand side of the main menu, you can open an information window with the WinSPT software version and the manufacturer NRI. You can close the window by clicking **OK**.
- Underlined letters in the menu bar and in the pull-down menus **MDB** must be treated the same way as in Windows and stand for the key that executes specific functions when pressed together with the "Alt" key on the keyboard (varies from one operating system to another).
- By clicking the small cross  on the top right-hand side in a pop-up window, the window is closed or an operation aborted.
- Loading and testing operations are always documented in an information window by means of a status-bar indicator.

Abbreviated keyboard commands

If you do not want to call up the desired window using the menu bar and the mouse but would rather use the keyboard to perform this operation more quickly, the following abbreviated keyboard commands are available:

Pop-up window	Shortcut
VENDING MACHINE SIMULATOR	[v]
MDB SIMULATOR FOR CHANGER COMMUNICATION	[c]
MDB SIMULATOR FOR BILL VALIDATOR COMMUNICATION	[b]
MDB SIMULATOR FOR CASHLESS SYSTEMS	[g]
SIMULATOR FOR S1 COMMUNICATION	[1]
SIMULATOR FOR CCTALK COMMUNICATION	[t]
PRICE SELECTION (price presetting for simulator)	[p]
MDB/S1 MONITOR PROGRAM (data recording)	[m]
BDV/SIMPLEX V MONITOR PROGRAM (data recording)	[a]
CCTALK MONITOR PROGRAM (data recording)	[k]
JVI/VCCS MONITOR PROGRAM (data recording)	[j]
DIAGNOSTICS FOR THE CHANGER PROTEUS/CENTAUR/ G-46.F4000 (see separate instructions)	[d]
SETTINGS FOR THE NRI E-66/A-66/G-46.F4000 CHANGER (see separate instructions)	[s]

PART A – Check slave devices

A1 Installation

In this chapter you will find out how to

- install WinSPT,
- connect the device environment in order to check an MDB, S1 or cctalk slave device and
- start WinSPT.



In the near future, you will also be able to check BDV/Simplex V master devices (similarly as with the NRI SimBDV software).

Install WinSPT

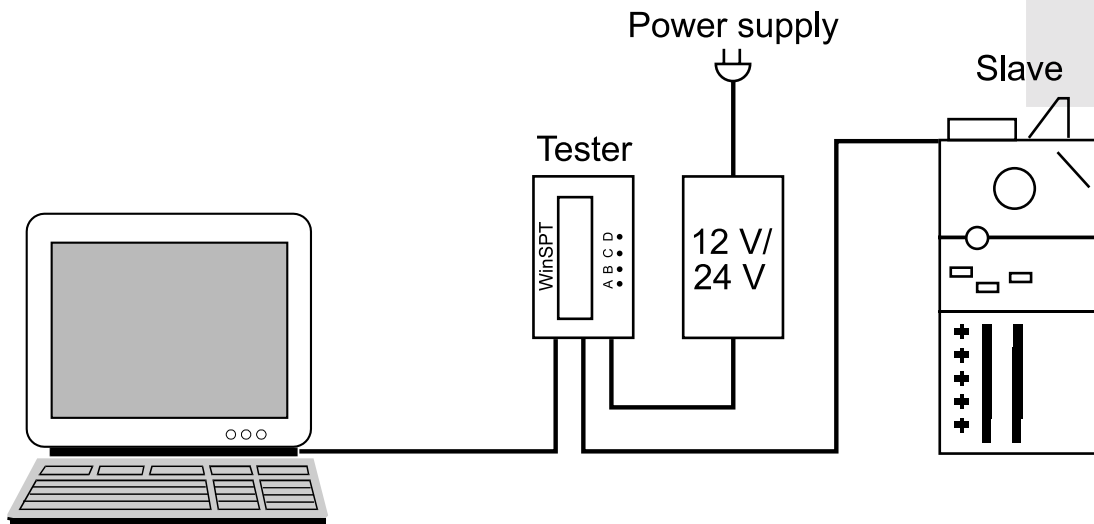
The NRI test software WinSPT is supplied on a CD-ROM. To install the program from the CD-ROM on the hard disk of your PC, please proceed as follows:

- 1** Close all open programs on your PC.
- 2** Insert the WinSPT CD into the CD-ROM drive.
- 3** Open Windows Explorer and use a double-click to start the installation file "WinSPT.exe" in the CD-ROM drive.
- 4** To ensure proper installation, follow the instructions on the screen. The program is stored on the hard disk of your PC, and the WinSPT icon  is saved on the PC desktop and in the start menu, so that you can start the program easily.

Before you start the software, it is advisable to connect the device environment first so that the installed software can access the connected slave device directly.

Install device environment

The device environment that is used to check an MDB/S1/cctalk slave device is connected to the PC as shown in the following illustration:



- 1** Connect the tester G-19.0654 at the "COM"-labelled or "USB"-labelled interface via the PC connecting cable to a COM/USB interface of the PC.
- 2** Connect the tester G-19.0654 at the "MDB"-labelled interface to one of the following devices to be checked:
 - MDB slave device via the vending machine connecting cable (G-13.mft MDB and G-18.mft MDB additionally via the MDB S1 adapter cable 21437).
 - S1 slave device via the vending machine connecting cable and the MDB S1 adapter cable 21437.
 - cctalk slave device via the vending machine connecting cable and the cctalk Y connecting cable 25590.



For the connection of some devices, the enclosed MDB Y connecting cable must be used as an extension.

- 3** Connect the enclosed power cable to the WinSPT power pack (for coin validators, the 12-V DC power pack, for all other slave devices to be checked, the 24-V DC power pack).



Replace the power pack included in the scope of delivery only with equivalent 24-V or 12-V DC power packs (ordering code: 24684 for 24 V and 21555 for 12 V)!

- 4** Connect the tester G-19.0654 at the "DC"-labelled interface to the power pack and connect the power pack to the power supply. The display of the tester shows MDB TESTER.

Start WinSPT

The program can be opened the easiest way:

- double-clicking on the WinSPT icon  on the desktop of your PC or
- via Windows **START** menu, **PROGRAMS** and  **WinSPT**.

You will go to the main menu of the software.



Select USB/COM port

If the device environment has been correctly connected, but WinSPT is still unable to establish connection with the device (error message), the device environment may be connected to a PC interface that is not identical to the one selected in the program.



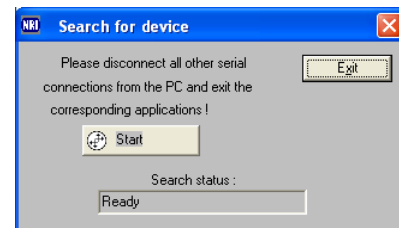
To select the correct serial port, you simply need to select the menu item **INTERFACE** in the main menu and then the respective **USB** or **COM** port.

The selected interface is provided with a tick in the pull-down menu.

If the interface is not known, you can also use WinSPT to search for the correct port:

- 1 Disconnect all other serial connections that are still connected to the PC, with the exception of the WinSPT test station, and close the respective programs.
- 2 In the main menu, select menu item **INTERFACE** and then **SEARCH FOR DEVICE**.
- 3 In the dialog box, click **START**.

WinSPT searches for the port to which the tester is connected and shows you the interface.



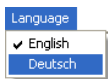
- 4 Select the interface that was found with **SAVE & EXIT**.
The dialog box closes.



A2 General program settings

This chapter describes all the settings which solely relate to the WinSPT program and not to the connected device to be tested.

Set menu language



The WinSPT software is available in German and in English. To select the other respective language, you simply need to select the menu item **LANGUAGE** in the main menu and then **DEUTSCH** or **SPRACHE** and then **ENGLISH**.

The software texts are displayed in the selected language.

Show and hide status/help texts



The bottom status bar of the program shows you information and aids regarding the respective dialog window selected. If you do not require this help, you can hide the status bar.

In the main menu, select the menu item **VIEW** and then **STATUS BAR**.

To show the status bar again, simply repeat these two steps.

A3 Function test

In this chapter you will find out how to check the functional efficiency of a connected MDB, S1 or cctalk slave device. To do so, you can:

- Simulate a vending operation on the vending machine (only for MDB changers and MDB bill validators)
- Simulate changer functions
- Simulate bill validator functions
- Simulate functions of cashless payment systems
- Simulate coin validator functions



In the near future, you will also be able to check BDV/Simplex V master devices (similarly as with the NRI SimBDV software).

Presettings for the simulators (not for coin validators)

To ensure that the individual functions of the connected device can be simulated, the most important vending machine settings must be communicated to the simulator.

Before going to the simulations, perform the settings described in the following sections first.

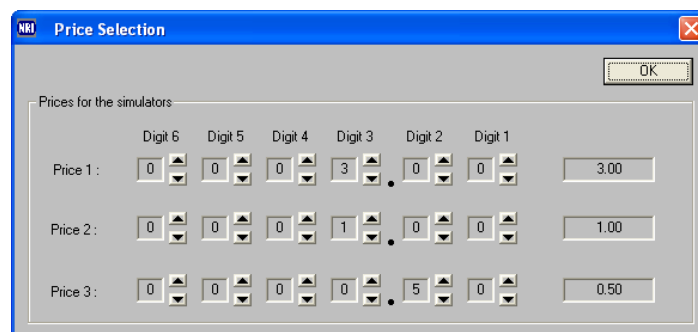
Set the prices configured on the vending machine

To set the prices configured on the vending machine for the simulator:



- 1 In the main menu, select menu item **SETTINGS**, then ... **SIMULATOR** and then **PRICES**.

WinSPT opens a dialog box in which up to three prices can be set.

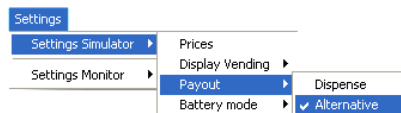


- 2 Use the arrow buttons to set the prices.
- 3 Confirm your entry with **OK**.
The dialog box is closed.

Set the payout mode configured on the vending machine (DISPENSE/ALTERNATIVE PAYOUT) (only for MDB changers)

Two different payout modes can be set on the vending machine:

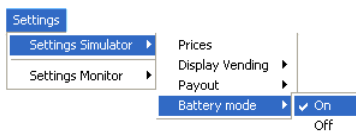
DISPENSE	Vending machine sends a signal telling the changer which coins the changer must pay out and how often. The changer does not confirm that it has paid out coins.
ALTERNATIVE PAYOUT	Vending machine sends a signal telling the changer which value the changer must pay out. The changer determines which coin(s) is/are paid out. The changer answers by telling which coins it has paid out and how often.



To set the payout mode configured on the vending machine for the simulator, select, in the main menu, the menu item **SETTINGS**, then ...**SIMULATOR**, then **PAYOUT** and **DISPENSE** or **ALTERNATIVE**.

Select battery operation

If, e.g., you want to check a changer in battery operation, this mode must be preset.



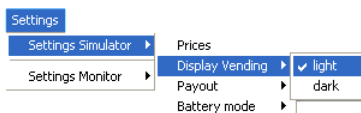
To set battery operation, select, in the main menu, the menu item **SETTINGS**, then ... **SIMULATOR**, and then **BATTERY MODE ON**.

Set the display brightness of the vending machine simulator (only for MDB changers/bill validators)

Depending on the quality and setting of your PC monitor, you can set the display to bright or dark for the vending machine simulation so that you can read the display texts easily:

bright: dark letters or characters on a bright background

dark: bright letters or characters on a dark background



In the main menu, select the menu item **SETTINGS**, then ... **SIMULATOR**, then **DISPLAY VENDING** and **LIGHT** or **DARK**.

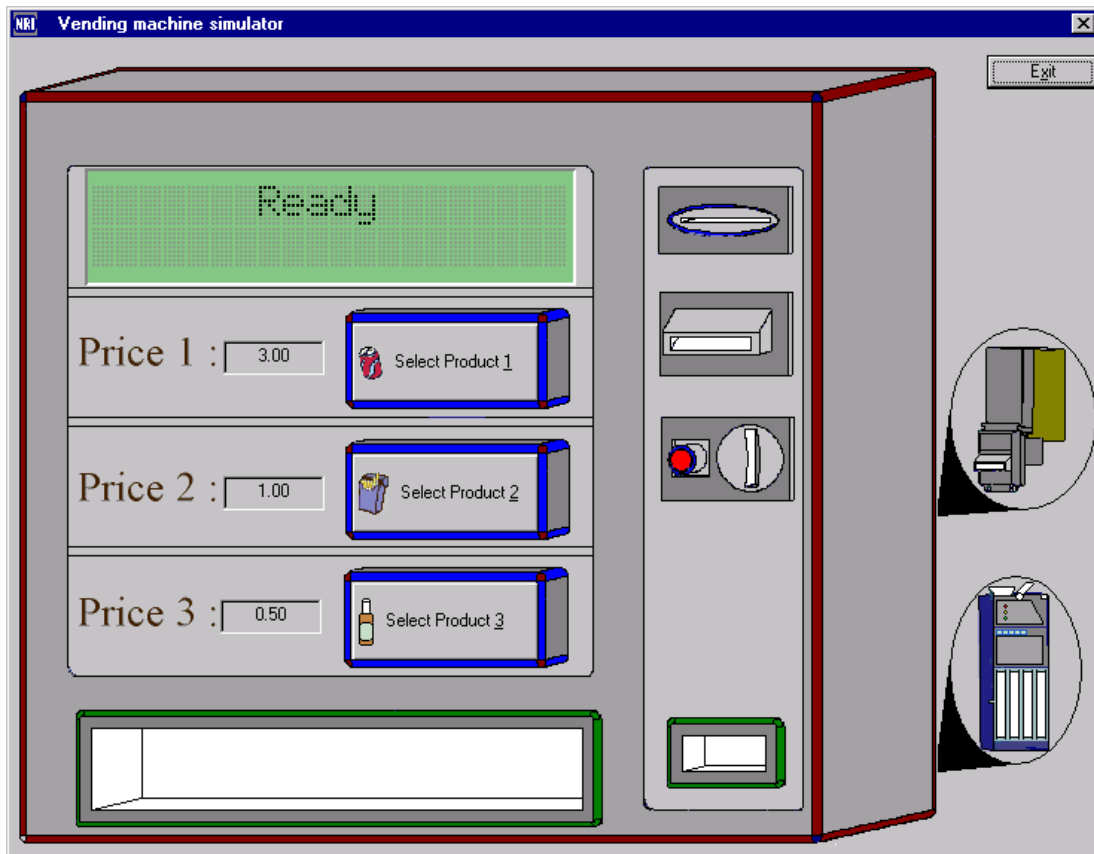
Simulate vending operation on the vending machine (only for MDB changers/bill validators)

To carry out the diagnostics procedure for a connected MDB changer or MDB bill validator, you should preferably begin with the basic communication between the master and slave(s) and call up the vending machine simulator:

MDB
Simulator changer
Simulator bill validator
Simulator cashless system
Simulator vending machine
Monitor program
Diagnostics E66 / A66 / F4000
Settings E66 / A66 / F4000

- 1 In the main menu, select menu item **MDB** and then **SIMULATOR VENDING MACHINE**.

WinSPT opens the vending machine simulator, which indicates first, on the the display in top left-hand side, which slave devices are connected and which ones are not, and then that it is ready for operation.



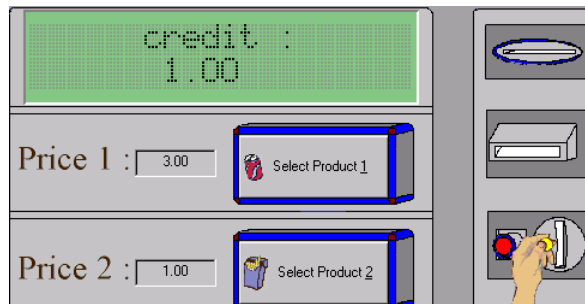
If the display texts are difficult to read, you can change the brightness of the display (see section "Presettings for the simulators" in this chapter).

The detected devices are displayed on the right-hand side.
For the three available products, the previously set price is indicated.



If you want to change the prices, proceed as described in the section "Presettings for the simulators".

- 2** Provide the slave device to be checked with enough money (coins/bills) so that you can buy a product at the price indicated. The process is simulated and the available credit shown on the display at the top.



Exit

- 3** Click the selection button of the desired product. The product is dispensed, and a possible remaining credit is shown in the display first and then returned.
- 4** Close simulator with **EXIT**.
- 5** Inspect the device to be checked more precisely if it does not react as described above (see following sections).

Simulate MDB changer functions

The following changer functions can be verified:

- Initialization (also in the wake-up mode)
- Vending operation on the changer
- Coin acceptance and sorting
- Monitor filling level sensors (only NRI changers E-66/A-66)
- Empty the change tubes
- MDB commands



Due to the fact that no MDB address for coin validators is provided in the MDB protocol, the changer simulator can be used to check not only MDB changers but also MDB coin validators, if they possess an MDB address "01" (e.g. the NRI coin validators G-13.mft MDB and G-18.mft MDB (slave)).

These tests are carried out using the changer simulator, which you call up by selecting the menu item **MDB** in the main menu and then **SIMULATOR CHANGER**.

Check battery operation

Communication between vending machine and changer

Monitoring of filling level sensors (only NRI changers E-66/A-66)

Manufacturer data/device data, and basic settings

Coin ID, tubes

Coin value, tubes

Simulator counter

Tube counter

"Full" sensor covered

Coin ID, cash-box

Coin value, cash-box

Credit generated by coin insertion

Preset prices

Selection buttons

Reset generated credit

Vending-machine-to-changer commands to be simulated

Delete texts in windows

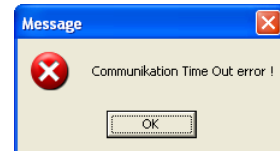
When the simulator is opened, the changer/coin validator is initialized according to MDB specifications. If the CHANGER window displays "OK", the initialization was successful, and the changer/coin validator is ready for operation.

Check wake-up mode

If you have connected a battery device for the purpose of checking, WinSPT cannot establish communication with the changer/coin validator immediately, due to the fact that the device is in the sleep mode (see also the section "Presettings for the simulators" in this chapter). In that case:

1 Confirm error message with **OK**.

The changer/coin validator could not be initialized. The CHANGER window indicates COMMUNICATION TIMEOUT.



Wake up

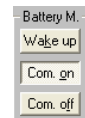
2 In the field BATTERY M., select **WAKE UP**.

The communication is set up and the device initialized.

Com. off

3 In the field BATTERY M., select **COM. OFF**.

The communication is interrupted.



4 Check whether the changer/coin validator goes to sleep after the preset wake-up time.

In the case of the NRI E-66/A-66, the green pilot lamp at the top of the coin validator goes out.

Wake up

5 In the field BATTERY M., select **WAKE UP** again.

The communication is set up again.

6 If necessary, check other device functions (see following sections in this chapter).

Simulate vending operation on the changer

You will see the communication that takes place during the vending operation between the vending machine and the changer displayed in the two windows (VENDING MACHINE/CHANGER).

To simulate a vending operation:

- 1 Insert enough coins into the changer so that you can buy a product at the price indicated (on the bottom right-hand side).

The available credit is shown on the bottom right-hand side.

Price	
Price 1	3.00
Price 2	1.00
Price 3	0.50

Credit
1.00

Under TUBE STATUS the COUNTER indicates the number of coins inserted.

Counter : 0 0 0 2

Price 2

- 2 Click the price button of the desired product.
A possible remaining credit is returned.

Exit

- 3 Close simulator with **EXIT** or use the simulator to check other device functions first.

Reset credit

If, following the insertion of a coin, you want to reset the indicated credit, simply click **CLEAR CREDIT**.
Under Credit, 0.00 is displayed again.

Clear credit

Credit
0.00



This command only refers to the display and has nothing to do with the MDB interface.

Check coin acceptance and sorting

When you insert coins into the changer/ coin validator, the changer window shows you whether a coin was sorted into the cash-box or into a change tube. Which value the coin has is something you will find resolved under TUBE STATUS or CASH-BOX.

Under TUBE STATUS, you will also find out how many coins the tube counter is counting (NUMBER) and how many tube coins have been accepted since the simulator was opened (COUNTER).

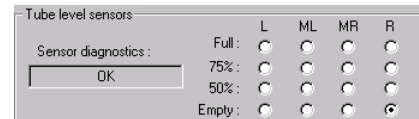
Vending machine	Changer
Pol	Coin 6 in Cash Box

Tube status									
Coin :	0	1	2	3					
Value :	0.05	0.10	0.20	0.50					
Counter :	0	1	0	1					
Number :	0	0	0	0					
Tube full :	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cash-box									
Coin :	4	5	6	7					
Value :	0.50	1.00	2.00	TKA					

Monitor filling level sensors (only NRI changers E-66/A-66)

If the filling level sensors are no longer signalling correctly, you can insert the respective coin to check when the sensors react and compare the reaction with the tube counter reading.

Under TUBE LEVEL SENSORS, the four sensors are marked if they are covered by coins and react perfectly (here: empty sensor of the right-hand tube covered). If



a sensor is marked, although it should not be covered according to the tube counter (NUMBER), the sensor may be disturbed by external light, the tube cassette may not be correctly inserted or the sensor may be defective (see message under SENSOR DIAGNOSTICS). In that case, please verify the filling level sensors using the detailed diagnostics window (see separate instructions).

Empty the change tubes (only changers)

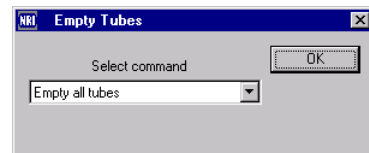
If you want to check whether the change tubes can be emptied:

Empty tubes

1 Click **EMPTY TUBES**.

2 Select the desired command from the pull-down menu and confirm with **OK**.

The dialog box closes, and the changer should empty the tubes according to the command (e.g. all tubes down to security stock).



The communication between the vending machine and the changer is shown in the two windows.



*If many coins were paid out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.*

Clear window

Exit

3 Close simulator with **EXIT** or use the simulator to check other device functions first.

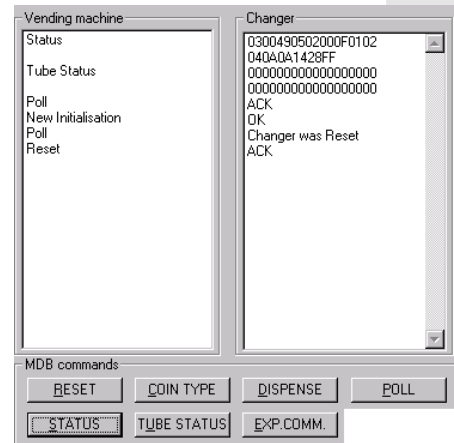
Execute MDB commands

This section describes how you can check whether the changer/coin validator is reacting correctly to MDB commands sent by the vending machine. The MDB commands are simulated using the buttons on the bottom left-hand side. Commands and replies are displayed in the two windows above the buttons.



For more information on the individual commands and replies, please refer to the specification "NAMA document MDB/CP 2.0" at www.vending.org.

*If several commands have already been carried out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.*



Clear window

Address changer/coin validator via vending machine (POLL)

POLL

To test whether the changer/coin validator is reacting to the vending machine, simply click the button **POLL**.

The communication between the vending machine and the changer/coin validator is shown in the two windows.

Re-initialize changer/coin validator by means of vending machine (RESET)

RESET

To test whether the changer/coin validator is being re-initialized by the vending machine, simply click the button **RESET**.

The communication between the vending machine and the changer/coin validator is shown in the two windows.

Display manufacturer data, device data and diagnostics result (EXPANSION COMMAND)

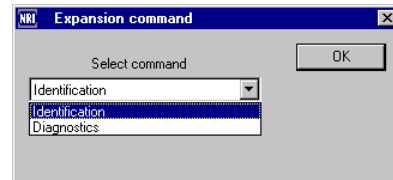
EXP.COMM.

To check what the changer is replying to the EXPANSION COMMAND:

1 Click the button **EXP. COMM.**

2 From the pull-down menu, select the desired command (manufacturer data and device data or diagnostics result) and close the window with **EXIT**.

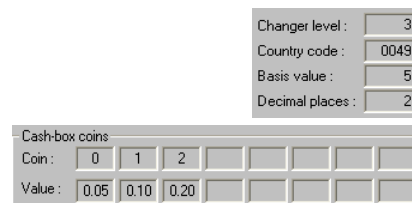
The communication between the vending machine and the changer/coin validator is shown in the two windows.



Display factory-provided basic settings (default) in hex (STATUS)

If you want to look at the factory-programmed basic settings (default) in the changer/coin validator in the hexadecimal number system (see field IDENTIFICATION, on the right-hand side and field CASH-BOX), click the button **STATUS**.

STATUS



The communication between the vending machine and the changer/coin validator is shown in the two windows.



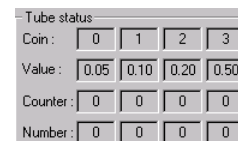
The default settings become effective after each reset operation.

Display tube information in hex (TUBE STATUS)

You will receive the coin data included in the field TUBE STATUS in the hexadecimal number system by clicking the button **TUBE STATUS**.

TUBE STATUS

The communication between the vending machine and the changer/coin validator is shown in the two windows.



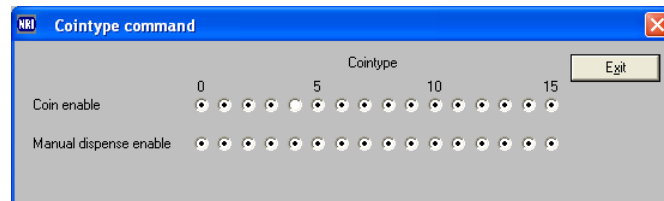
In the case of some vending machines that are equipped with a coin validator but not with a changer, cash-box coins must still be defined as tube coins.

Enable/inhibit coin acceptance (COIN TYPE)

If you want to check whether the changer/coin validator is actually rejecting or accepting the coins inhibited or enabled via the vending machine:

COIN TYPE

- 1 Click the button **COIN TYPE**.



A dialog box opens in which the coin acceptance is displayed at the top for the 16 coins (0–15) (marked coins are enabled and not marked coins inhibited (here: coin 4)).

- 2 Inhibit the desired coin(s) by clicking the marking and close the window with **EXIT**.

The communication between the vending machine and the changer/coin validator is shown in the two windows.

- 3 Insert the respective coins into the changer/coin validator.

Whether the inhibited coins are being accepted by the changer/coin validator is shown again in the two windows.

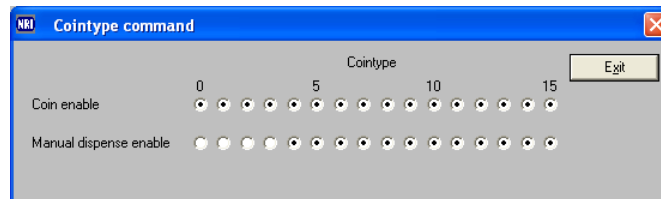


For more information about coin acceptance, please see the section "Check coin acceptance and sorting" in this chapter.

Enable/disable inventory keys of the changer (COIN TYPE)

If you want to check whether the inventory keys disabled via the vending machine can indeed not be operated, so that the change tubes cannot be emptied manually:

COIN TYPE

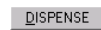
1 Click the button COIN TYPE.

A dialog box opens in which the available 16 coins (0–15) are displayed at the bottom for the inventory keys (marked coin = can be dispensed via inventory key, and not marked coin = cannot be dispensed (here: coins 0–3, all tube coins)).

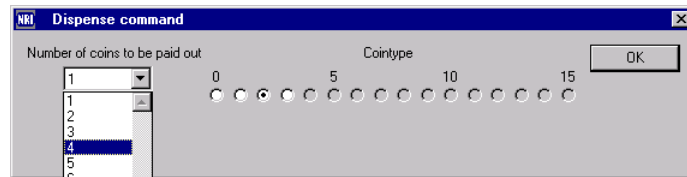
- 2** Inhibit the desired coin(s) by clicking the marking for manual dispense and close the window with **EXIT**. The communication between the vending machine and the changer is shown in the two windows.
- 3** Press the disabled inventory key on the changer.
Whether or not coins are being dispensed from the respective tube is shown again in the two windows.

Specify coin type and number of coins to be paid out (DISPENSE) (only changers)

If you want to check whether the changer is dispensing the coin type and quantity defined via the vending machine as a result of the **DISPENSE** command:



- 1 Click the button **DISPENSE**.



A dialog box opens in which the 16 coins (0–15) are displayed on the right-hand side and the number of coins on the left-hand side.

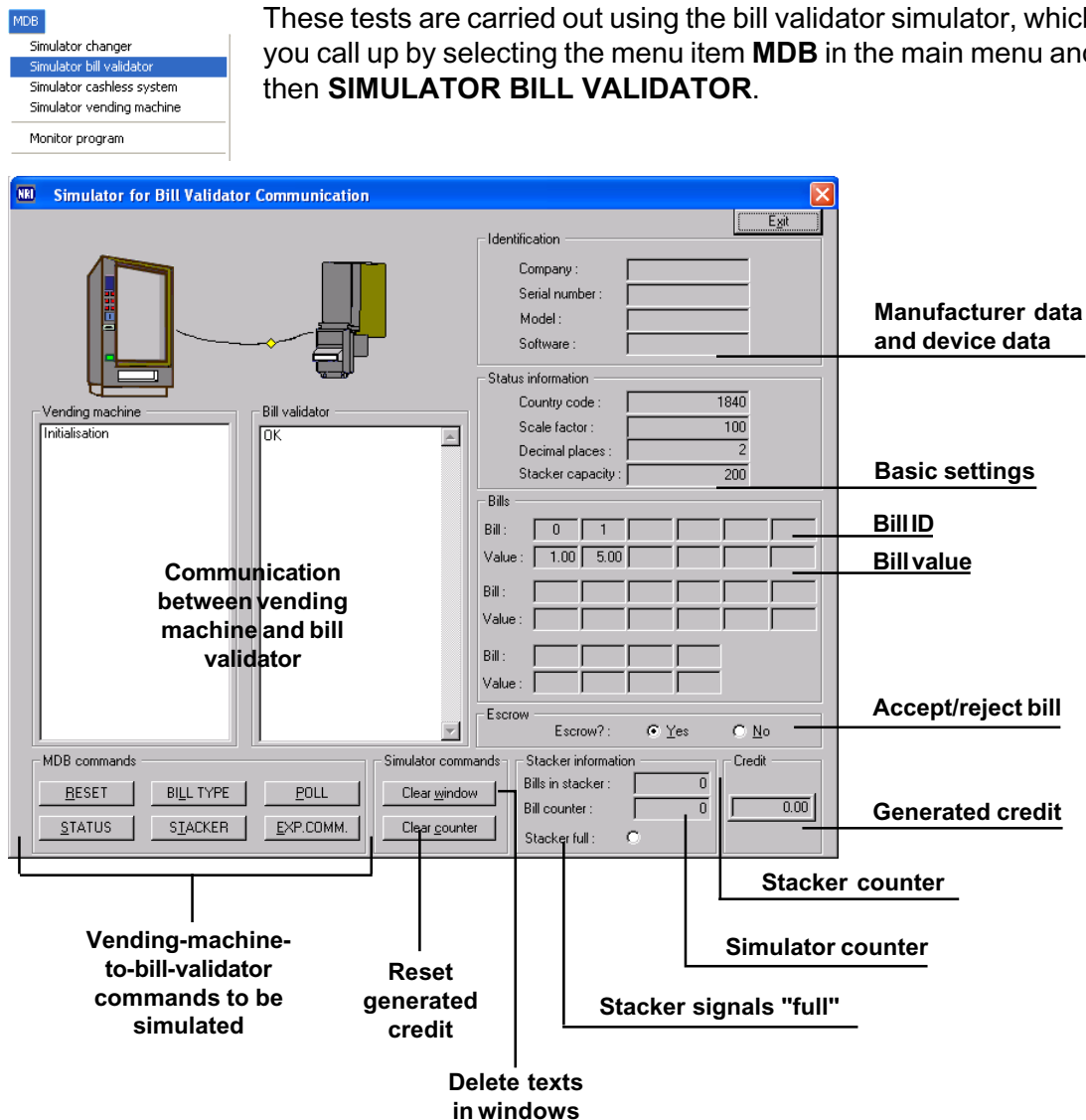
- 2 Click the tube coin to be paid out.
It will be marked (here: coin 2).
- 3 From the pull-down menu, select how often this coin is to be dispensed and close the window with **EXIT**.
The communication between the vending machine and the changer is shown in the two windows, and the changer will execute the command, provided that the respective change tube is not empty.

Simulate MDB bill validator functions

The following bill validator functions can be verified:

- Initialization
- Generate credit
- Bill acceptance
- MDB commands

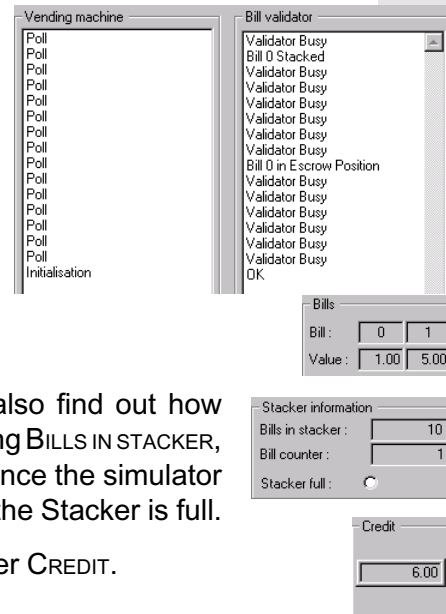
These tests are carried out using the bill validator simulator, which you call up by selecting the menu item **MDB** in the main menu and then **SIMULATOR BILL VALIDATOR**.



When the simulator is opened, the bill validator is initialized according to MDB specifications. If the BILL VALIDATOR window displays "OK", the initialization was successful, and the validator is ready for operation.

Check bill acceptance

When you insert bills into the validator, the BILL VALIDATOR window shows you whether or not a bill was accepted and directed into the cash-box. Which value the coin has is displayed in the field **BILLS**.

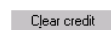


Under **STACKER INFORMATION**, you will also find out how many bills the stacker counter is counting **BILLS IN STACKER**, how many bills have been accepted since the simulator was opened (**BILL COUNTER**) and when the Stacker is full.

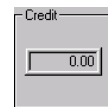
The generated credit is added up under CREDIT.

Reset credit

If, after a few tests, you want to reset the indicated credit, simply click **CLEAR CREDIT**.



Under CREDIT, 0.00 is displayed again.



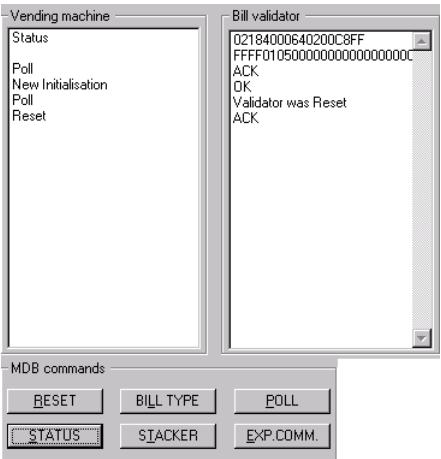
This command only refers to the display and has nothing to do with the MDB interface.

Execute MDB commands

This section describes how you can check whether the bill validator is reacting correctly to MDB commands sent by the vending machine. The MDB commands are simulated using the buttons on the bottom left-hand side. Commands and replies are displayed in the two windows above the buttons.



For more information on the individual commands, please refer to the specification "NAMA document MDB/CP 2.0" at www.vending.org. If several commands have already been carried out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.



Clear window

Address bill validator via vending machine (POLL)

POLL

To test whether the bill validator is reacting to the vending machine, simply click the button **POLL**. The communication between the vending machine and the bill validator is shown in the two windows.

Re-initialize bill validator by means of vending machine (RESET)

RESET

To test whether the bill validator is being re-initialized by the vending machine, simply click the button **RESET**. The communication between the vending machine and the bill validator is shown in the two windows.

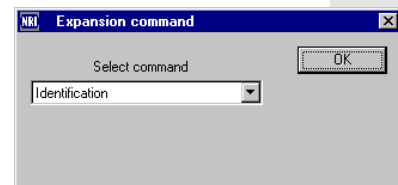
Display manufacturer data and device data (EXPANSION COMMAND)

To check what the bill validator is replying to the EXPANSION COMMAND:

EXP.COMM.

1 Click the button EXP. COMM.

In the pop-up window, IDENTIFICATION (manufacturer data and device data) has already been selected from the pull-down menu (at the present time, no other commands are possible).

**2 Close the window with OK.**

The communication between the vending machine and the bill validator is shown in the two windows.

Display factory-provided basic settings (default) in hex (STATUS)

If you want to look at the factory-programmed basic settings (default) in the bill validator in the hexadecimal number system (see field STATUS INFORMATION, on the right-hand side and field BILLS), click the button **STATUS**. The communication between the vending machine and the bill validator is shown in the two windows.

STATUS



The default settings become effective after each reset operation.

Status information	
Country code :	0001
Basis value :	100
Decimal places :	2
Stacker capacity :	200

Bills	
Bill :	0 1 2
Value :	1.00 2.00 5.00
Bill :	
Value :	
Bill :	
Value :	

Display stacker information in hex (STACKER)

You will receive the bill data included in the field BILLS in the hexadecimal number system by clicking the button **STACKER**.

STACKER

Bills	
Bill :	0 1
Value :	1.00 5.00

The communication between the vending machine and the bill validator is shown in the two windows.

Reject bill (ESCROW)

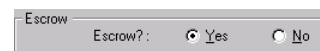
The bill validator has the option of holding an inserted bill initially in the so-called escrow position before the bill is finally transported into the stacker. The validator waits for a command from the vending machine that tells the validator whether the bill is to be accepted or returned, if necessary, from the escrow position.

To check whether the bill validator is executing the ESCROW command, proceed as follows:

- 1 In the field ESCROW, click **YES** or **NO**.

YES Accept bill

NO Reject bill



- 2 Insert the bill into the validator.

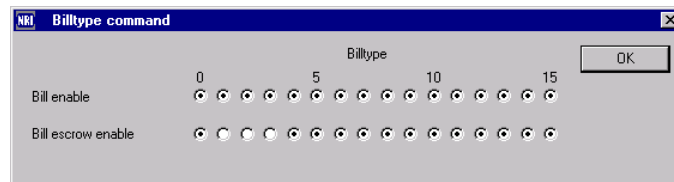
Whether the bill is being correctly accepted or rejected by the bill validator is shown in the two windows.

Suppress ESCROW command (BILL TYPE)

If you want to check whether the bill validator is indeed not executing the ESCROW command suppressed via the vending machine:

BILL TYPE

- 1 Click the button **BILL TYPE**.



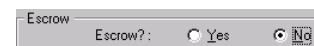
A dialog box opens in which 16 bills (0–15) are displayed at the bottom for the ESCROW command (marked bill = ESCROW command is being executed and bill, if necessary, rejected, and not marked bill = ESCROW command is being suppressed and bill always accepted (here: bill 1–3)).

- 2 Click the marking of the bill for which the ESCROW command is to be suppressed and close the window with **OK**.

The communication between the vending machine and the bill validator is shown in the two windows.

- 3 In the field ESCROW, click **NO**.

NO Reject bill
YES Accept bill



- 4 Insert the respective bill into the validator.

Whether the bill was indeed accepted by the validator, although the ESCROW command says "reject", is shown again in the two windows.

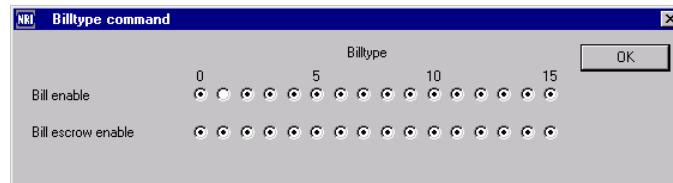


For more information about the escrow function, please see the section "Reject bill (ESCROW)" in this chapter.

Enable/inhibit bill acceptance (BILL TYPE)

If you want to check whether the bill validator is actually rejecting or accepting the bills inhibited or enabled via the vending machine:

BILL TYPE

1 Click the button BILL TYPE.

A dialog box opens in which the bill acceptance is displayed at the top for 16 bills (0-15) (marked bills are enabled and not marked bills inhibited (here: bill 1)).

2 Inhibit the desired bill(s) by clicking the marking and close the window with OK.

The communication between the vending machine and the bill validator is shown in the two windows.

3 Insert the inhibited bill into the bill validator.

Whether the inhibited bill is being accepted by the validator is shown again in the two windows.

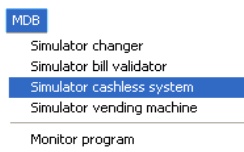


For more information about bill acceptance, please see the section "Check bill acceptance" in this chapter.

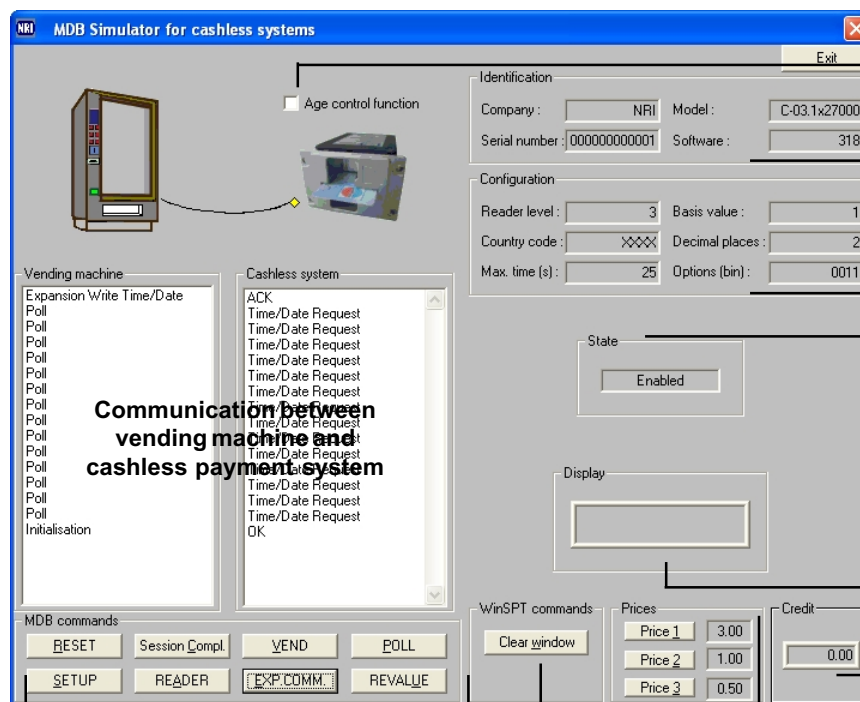
Simulate cashless MDB payment systems

The following functions of card readers, key systems, etc. can be verified:

- Initialization
- Acceptance of means of payment
- Vending operation
- Return of means of payment
- MDB commands



These tests are carried out using the simulator for cashless MDB payment systems, which you call up by selecting the menu item **MDB** in the main menu and then **SIMULATOR CASHLESS SYSTEM**.



Test system with activated youth protection function

Manufacturer data and device data

Basic settings

Reader status:
Inactive
Disabled/Enabled
Session Idle
Vend
Revalue (only Level 2/Level 3)
Negative Vend (only Level 3)

Display data transmitted from reader

Current credit

Vending-machine-to-cashless-payment-system commands to be simulated

Delete texts in windows

Preset prices

When the simulator is opened, the connected system is initialized according to MDB specifications. If the window CASHLESS SYSTEM displays "OK", the initialization was successful, and the system is ready for operation.



If the connected payment system constantly asks the vending machine for the system time, select, under MDB COMMANDS, **EXP. COMM.** and then **WRITE TIME/DATE** and transmit, together with the respective time data, to the payment system.

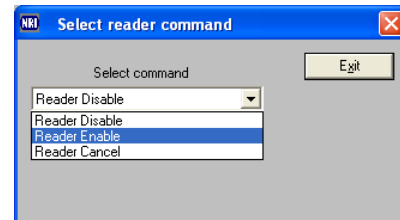
Check acceptance of means of payment

In order to be able to accept the means of payment (e.g. card), the reader status must, if necessary, be set to "Enabled" first:

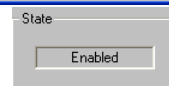
READER

1 In the field MDB COMMANDS, select **READER**.

2 From the pull-down menu, select the command **READER ENABLE** and close the window with **EXIT**.
Command and reply are displayed in the two windows on top.

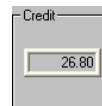
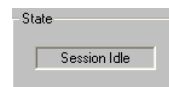


In addition, the STATUS field now displays **ENABLED**.



3 Insert the means of payment into the reader.

Command and reply are displayed in the two windows again, and the STATUS field now displays **SESSION IDLE**.
The reader is ready for a vending operation.
The current credit for a vending operation is displayed under CREDIT.



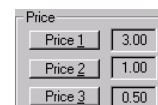
Simulate vending operation

1 Insert the means of payment into the reader (see section "Check acceptance of means of payment" in this chapter).

Price 2

2 In the field PRICE, select a price button.

The communication between master and slave is shown again in the two windows. The credit is reduced according to the selected product price.



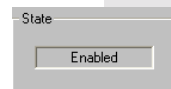
To simulate a vending operation using the vending machine command "Vend Request", see section "Execute MDB commands" in this chapter.

Check return of means of payment

Session Compl.

1 In the field MDB COMMANDS, select **SESSION COMPL.**

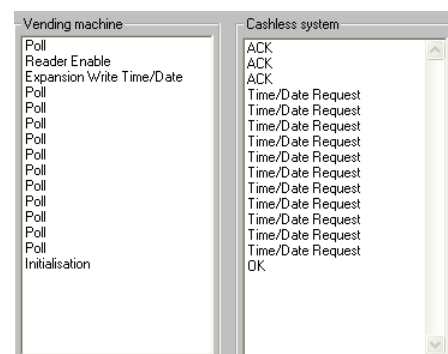
The communication between master and slave is shown in the two windows, the means of payment is released, and the reader status changes again to **ENABLED**.



2 Remove the means of payment.

Execute MDB commands

This section describes how you can check whether the cashless MDB payment system is reacting correctly to MDB commands sent by the vending machine. The MDB commands are simulated using the buttons on the bottom left-hand side. Commands and replies are displayed in the two windows above the buttons.



For more information on the individual commands and replies, please refer to the specification "NAMA document MDB/ICP 2.0" at www.vending.org.

If several commands have already been carried out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.

Clear window

Address cashless payment system via vending machine (POLL)

POLL

To test whether the payment system is reacting to the vending machine, simply click the button **POLL**.

The communication between the vending machine and the payment system is shown in the two windows.

Re-initialize cashless payment system by means of vending machine (RESET)

RESET

To test whether the payment system is being re-initialized by the vending machine, simply click the button **RESET**.

The communication between the vending machine and the payment system is shown in the two windows.

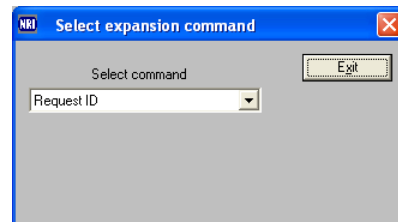
Display manufacturer data and device data (EXPANSION COMMAND)

To check what the payment system is replying to the EXPANSION COMMAND:

EXP.COMM.

- 1 Click the button **EXP. COMM.**

In the pop-up window, REQUEST ID (manufacturer data and device data) has already been selected from the pull-down menu.



Exit

- 2 Close the window with **EXIT**.

The communication between the vending machine and the payment system is shown in the two windows.

Display factory-provided basic settings (default) in hex (SETUP)

If you want to look at the factory-programmed basic settings (default) in the payment system in the hexadecimal number system (see field IDENTIFICATION), click the button **SETUP**.

SETUP

The communication between the vending machine and the payment system is shown in the two windows.



The default settings become effective after each reset operation.

Change reader status (READER)

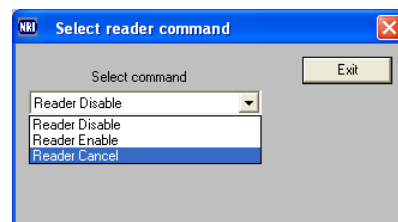
If you want to check how the payment system is reacting in a specific status, in order to determine whether, e.g., it is actually not accepting any means of payment in the status "Disabled", select the desired status as follows:

READER

- 1 In the field MDB COMMANDS, select **READER**.

- 2 From the pull-down menu, select the desired command and close the window with **EXIT**.

The communication between the vending machine and the payment system is shown in the two windows. In addition, the STATUS field now displays the respective other status.



Exit

Send system time (EXPANSION COMMAND)

To check how the payment system is replying to the EXPANSION COMMAND:

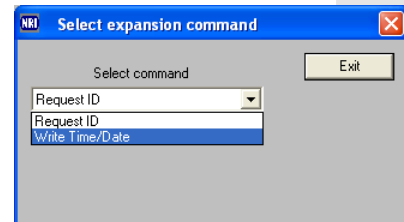
EXP.COMM.

1 Click the button **EXP. COMM.**

2 From the pull-down menu, select **WRITE TIME/DATE.**

Exit

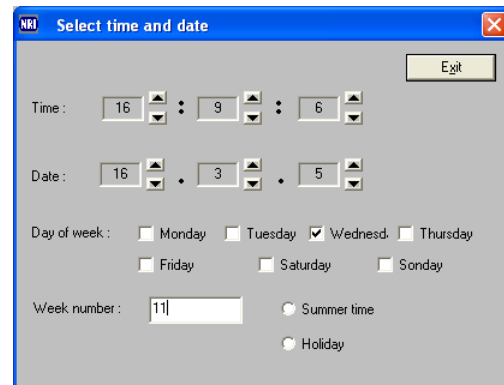
3 Close the window with **EXIT.**



4 Perform the time specifications that are to be sent to the payment system and close the window with **EXIT.**

Exit

The communication between the vending machine and the payment system is shown in the two windows.

**Send vending command (VEND)**

If you want to check whether the payment system is carrying out a vending operation or how it is reacting to the VEND CANCEL/VEND SUCCESS/VEND FAILURE command:

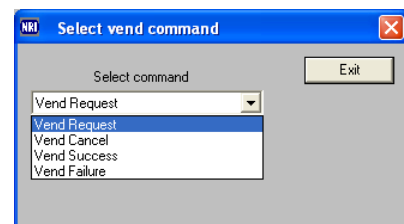
1 If necessary, insert the means of payment into the reader (see section "Check acceptance of means of payment" in this chapter).

VEND

2 Click the button **VEND.**

3 From the pull-down menu, select the desired command and close the window with **EXIT.**

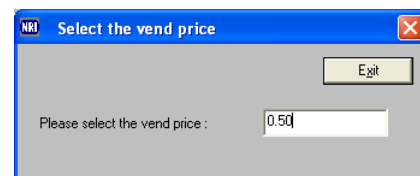
Exit



4 For the VEND REQUEST command, select the desired product price, if necessary, and close the window with **EXIT.**

Exit

The communication between the vending machine and the payment system is shown in the two windows.



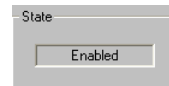
Terminate vending operation (SESSION COMPLETE)

If you want to check how the payment system is reacting to the termination of a vending operation:

Session Compl.

- 1 In the field **MDB COMMANDS**, select **SESSION COMPL.**

The communication between the vending machine and payment system is shown in the two windows, the means of payment is enabled, and the reader status changes again to **ENABLED**.



- 2 Remove the means of payment.

Send loading command (REVALUE)

If you want to check how the payment system is reacting to commands for loading the means of payment:

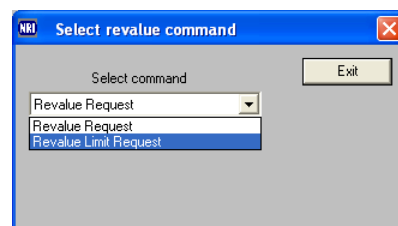
- 1 If necessary, insert the means of payment into the reader (see section "Check acceptance of means of payment" in this chapter).

REVALUE

- 2 Click the button **REVALUE**.

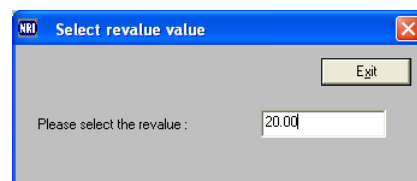
- 3 From the pull-down menu, select the desired command and close the window with **EXIT**.

Exit



- 4 For the revalue request command, enter the loading value, if necessary, and close the window with **EXIT**.

Exit



The communication between the vending machine and the payment system is shown in the two windows.

Simulate S1 coin validator functions



MDB coin validators with the MDB changer address "01" are checked using the changer simulator (see section "Simulate MDB changer functions" in this chapter).

The following coin validator functions can be verified:

- Initialization
- Generate credit
- Coin acceptance and sorting
- S1 commands



These tests are carried out using the S1 coin validator simulator, which you call up by selecting the menu item **S1** in the main menu and then **SIMULATOR FOR S1 COIN VALIDATORS**.

Credit generated by coin insertion

Manufacturer data/ device data, and basic settings

Coin ID

Multiplier for scaling factor/smallest coin value

Coin value (product from scaling factor and multiplier)

Cash-box chute (same for each coin, only for purpose of overview)

Communication between vending machine and coin validator

Reset credit generated by coin insertion

Delete texts in windows

Sorting chute (e.g. for G-40.F500) or sorting chute 1–5 (e.g. for G-40.x8xx) or sorter path 0–7 (e.g. for G-13.mft S1)

Vending-machine-to-coin-validator commands to be simulated

S1 commands

Sim commands

Default value

Cointype 0	Cointype 1	Cointype 2	Cointype 3
Value : 2	4	10	20
Coin value : 0.10	0.20	0.50	1.00
Cash box : 5	5	5	5
Sorting : 1	2	3	4

Cointype 4	Cointype 5	Cointype 6	Cointype 7
Value : 40	1	0	1
Coin value : 2.00	0.05	0.00	0.05
Cash box : 5	5	5	5
Sorting : 5	(3)	(3)	(3)

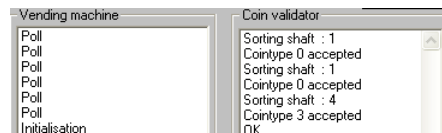
Cointype 8	Cointype 9	Cointype 10	Cointype 11
Value : 2	4	10	20
Coin value : 0.10	0.20	0.50	1.00
Cash box : 5	5	5	5
Sorting : (3)	(3)	(3)	(3)

Cointype 12	Cointype 13	Cointype 14	Cointype 15
Value : 95	40	0	0
Coin value : 4.75	2.00	0.00	0.00
Cash box : 5	5	5	5
Sorting : (3)	(3)	(3)	(3)

When the simulator is opened, the coin validator is initialized according to S1 specifications. If the COIN VALIDATOR window displays "OK", the initialization was successful, and the coin validator is ready for operation.

Check coin acceptance and sorting

When you insert coins into the coin validator, the coin validator window shows you whether or not a coin was accepted and directed into the cash-box. If a sorting device is connected, you will also see the sorting chute into which the coins were sorted or the sorter path that was used. Which value the respective coin has is something you will find resolved under DEFAULT VALUE.



	Coin type 0	Coin type 1	Coin type 2	Coin type 3
Value :	2	4	10	20
Coin value :	0.10	0.20	0.50	1.00

The generated credit is added up above the coin validator window under CREDIT.



Reset credit

If, following the insertion of a coin, you want to reset the indicated credit, simply click **CLEAR CREDIT**.

Clear credit



Under CREDIT, 0.00 is displayed again.



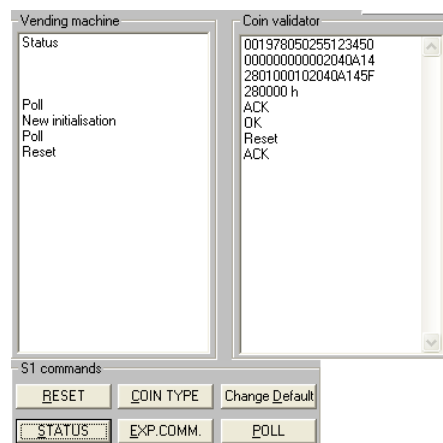
This command only refers to the display and has nothing to do with the S1 interface.

Execute S1 commands

This section describes how you can check whether the coin validator is reacting correctly to S1 commands sent by the vending machine. The S1 commands are simulated using the buttons on the bottom left-hand side. Commands and replies are displayed in the two windows above the buttons.



*For more information on the individual commands, please refer to the specifications "NAMA document MDB/ICP 2.0" at www.vending.org and "Specification of the interface of electronic coin validators G-40. S1 serial", which is available upon request from NRI. If several commands have already been carried out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.*



Clear window

Address coin validator via vending machine (POLL)**POLL**

To test whether the coin validator is reacting to the vending machine, simply click the button **POLL**.

The communication between the vending machine and the coin validator is shown in the two windows.

Re-initialize coin validator by means of vending machine (RESET)**RESET**

To test whether the coin validator is being re-initialized by the vending machine, simply click the button **RESET**.

The communication between the vending machine and the coin validator is shown in the two windows.

Display factory-provided basic settings (default) in hex (STATUS)**STATUS**

If you want to look at the factory-programmed basic settings (default) in the coin validator in the hexadecimal number system (see field IDENTIFICATION, on the right-hand side and field DEFAULT VALUE), click the button **STATUS**.

The communication between the vending machine and the coin validator is shown in the two windows.



The default settings become effective after each reset operation.

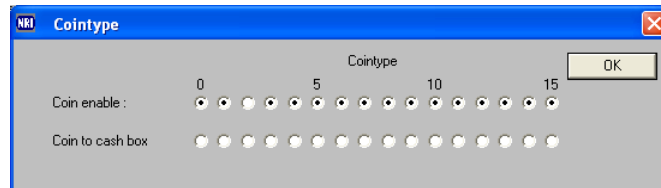
Validator level :	0	Scaling factor :	5
Country code :	1978	Decimal places :	2
		Number of Sorting :	5
		Cash box number :	5

Default value	Coin type 0	Coin type 1	Coin type 2	Coin type 3
Value :	2	4	10	20
Coin value :	0.10	0.20	0.50	1.00
Cash box :	5	5	5	5
Sorting :	1	2	3	4
	Coin type 4	Coin type 5	Coin type 6	Coin type 7
Value :	40	1	0	1
Coin value :	2.00	0.05	0.00	0.05
Cash box :	5	5	5	5
Sorting :	5	(3)	(3)	(3)
	Coin type 8	Coin type 9	Coin type 10	Coin type 11
Value :	2	4	10	20
Coin value :	0.10	0.20	0.50	1.00
Cash box :	5	5	5	5
Sorting :	(3)	(3)	(3)	(3)
	Coin type 12	Coin type 13	Coin type 14	Coin type 15
Value :	95	40	0	0
Coin value :	4.75	2.00	0.00	0.00
Cash box :	5	5	5	5
Sorting :	(3)	(3)	(3)	(3)

Enable/inhibit coin acceptance (COIN TYPE)

If you want to check whether the coin validator is actually rejecting or accepting the coins inhibited or enabled via the vending machine:

COIN TYPE

1 Click the button COIN TYPE.

A dialog box opens in which the coin acceptance is displayed at the top for the 16 coins (0–15) (marked coins are enabled and not marked coins inhibited (here: coin 2)).

2 Inhibit the desired coin(s) by clicking the marking and close the window with **OK.**

The communication between the vending machine and the coin validator is shown in the two windows.

3 Insert the respective coins into the coin validator.

Whether the inhibited coins are being accepted by the coin validator is shown again in the two windows.



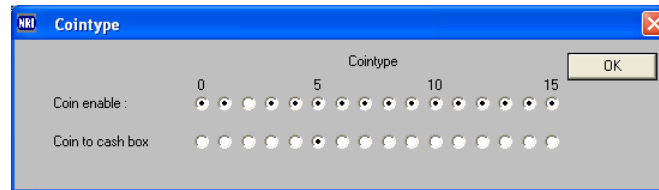
For more information about coin acceptance, please see the section "Check coin acceptance and sorting" in this chapter.

Direct coin into cash-box chute instead of into sorting chute (COIN TYPE)

If you want to check whether the coins redirected via the vending machine into the cash-box are not being sorted any longer but are actually being directed into the cash-box instead:

COIN TYPE

- 1 Click the button **COIN TYPE**.



A dialog box opens in which the available 16 coins (0–15) are displayed at the bottom for the redirecting of coins into cash-box (marked coin = is no longer being sorted but is being directed into the cash-box instead (here: coin 5); not marked coin = is not being directed into the cash-box).

- 2 Mark the desired coin(s) by clicking them and redirect them into the cash-box, and then close the window with **OK**. The communication between the vending machine and the coin validator is shown in the two windows.
- 3 Insert the coins redirected into the cash-box into the coin validator. Whether the coins are being sorted or are being directed into the cash-box is shown again in the two windows.

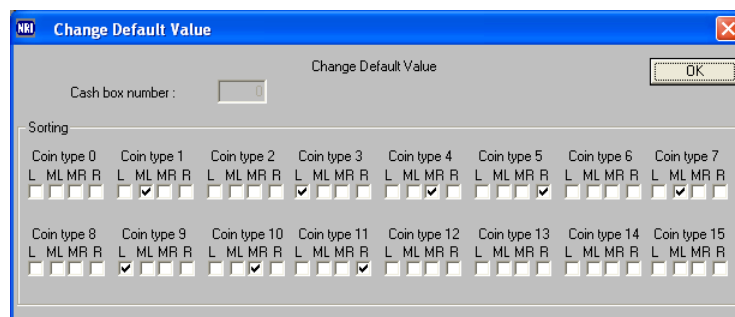
Change sorting (CHANGE DEFAULT)

If you want to check whether the coin validator is taking a changed sorting setting into account and is no longer sorting according to factory settings (see section "Display factory-provided basic settings (default) in hex (STATUS)" in this chapter):

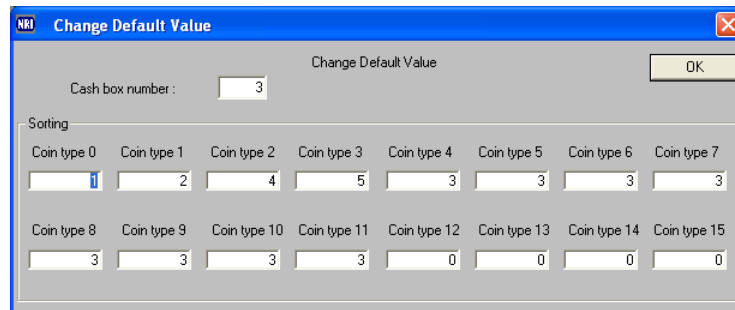
Change Default

1 Click the button CHANGE DEFAULT.

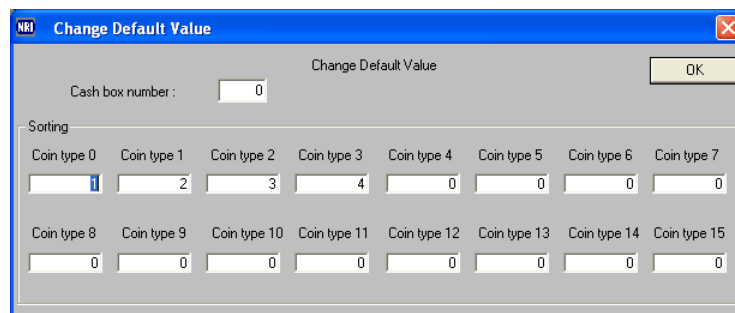
Depending on the connected coin validator, a different dialog box opens:

**G-40.F500**

At the bottom, the current sorting of the available 16 coins (0–15) is displayed (tick = coin is sorted into respective tube).

**G-40.x8xx**

At the bottom, the current sorting chute 1–5 of the available 16 coins (0–15) is displayed.

**G-13.mft S1**

At the bottom, the current sorter path 0–7 of the available 16 coins (0–15) is displayed.



In the case of the NRI coin validator G-40.F500, only the cash-box chute number sent via the vending machine is displayed. Due to the fact that this coin validator does not react to the cash-box chute command, the number of the cash-box chute cannot be changed.

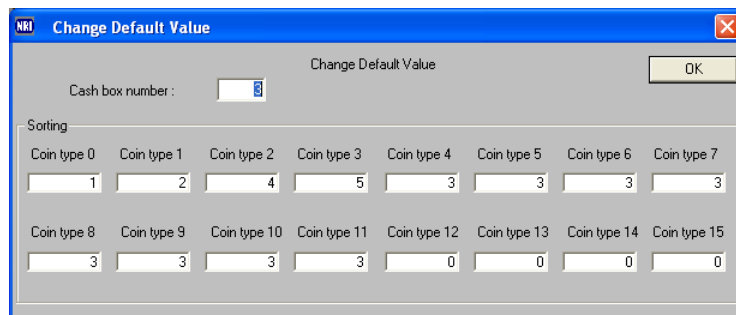
- 2** Set the desired sorting by clicking the boxes or by entering data via the keyboard and close the window with **OK**.
The communication between the vending machine and the coin validator is shown in the two windows.
- 3** Insert tube coins into the coin validator.
Whether the coins are being correctly sorted is shown again in the two windows.

Change cash-box chute (CHANGE DEFAULT) (not NRI coin validator G-40.F500)

If you want to check whether the coin validator is taking into account a cash-box chute that is different from the one of the factory setting (see section "Display factory-provided basic settings (default) in hex (STATUS)" in this chapter):

Change Default

- 1** Click the button **CHANGE DEFAULT**.



A dialog box opens in which the current cash-box chute number is displayed at the top.

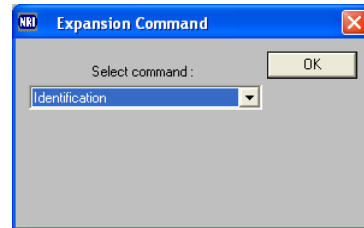
- 2** Use the keyboard to enter the desired cash-box chute number and close the window with **OK**.
The communication between the vending machine and the coin validator is shown in the two windows.
- 3** Insert cash-box coins into the coin validator.
Whether the coins are being directed into the correct chute is shown again in the two windows.

Display manufacturer data and device data (EXPANSION COMMAND, identification)

To check which manufacturer data and device data the coin validator is sending in response to the EXPANSION COMMAND:

EXP.COMM.

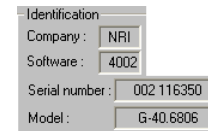
- 1 Click the button **EXP. COMM.**
- 2 From the pull-down menu, select **IDENTIFICATION** and close the window with **OK**.



The vending machine also sends information to the NRI coin validators G-40 S1 stating whether or not the coin validator is allowed to be set using the NRI configuration software WinEMP or PalmEMP.

*Close the information window with **OK**.*

The coin validator sends the manufacturer data and device data displayed in the hexadecimal number system in the field **IDENTIFICATION** (on the left-hand side).

**Display possible configuration inhibit of the coin validator (EXPANSION COMMAND, identification) (only NRI coin validator G-40 S1)**

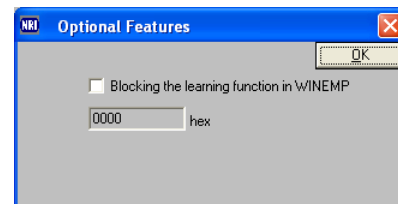
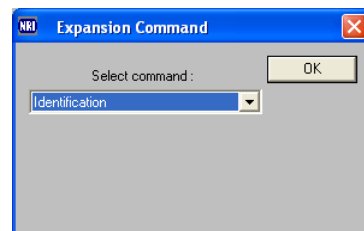
To check whether the vending machine permits an alteration of the coin validator factory setting using the NRI configuration software WinEMP or PalmEMP:

EXP.COMM.

- 1 Click the button **EXP. COMM.**
- 2 From the pull-down menu, select **IDENTIFICATION** and close the window with **OK**.

Except for the manufacturer data and device data shown in the field **IDENTIFICATION** (on the left-hand side), the coin validator also sends the protection information regarding customer-specific coin validator settings in the hexadecimal number system which is displayed in the opening information window (here: no protection).

- 3 Close the window with **OK**.

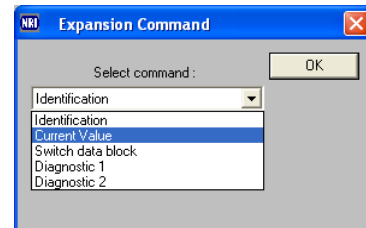


**Display current settings for coin inhibiting and sorting in hex
(EXPANSION COMMAND, current value)**

To check which currently applicable inhibiting and sorting settings for the control system of the coin validator the coin validator is sending in response to the EXPANSION COMMAND (e.g. according to COIN TYPE or CHANGE DEFAULT command):



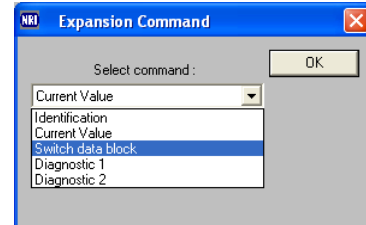
- 1 Click the button **EXP. COMM.**
- 2 From the pull-down menu, select **CURRENT VALUE** and close the window with **OK**.
The communication between the vending machine and the coin validator is shown in the two windows.

**Switch over memory block (EXPANSION COMMAND, switch block)
(only NRI coin validator G-40 S1)**

To check whether the coin validator is reacting via the EXPANSION COMMAND to switching over the memory block:



- 1 Click the button **EXP. COMM.**
- 2 From the pull-down menu, select **SWITCH BLOCK** and close the window with **OK**.
The communication between the vending machine and the coin validator is shown in the two windows.



**Display diagnostics results of the acceptance gate and sensors in hex
(EXPANSION COMMAND, diagnostics 1/2) (only NRI coin validator G-40 S1)**

To check which diagnostics results the coin validator is sending in response to the EXPANSION COMMAND:

EXP.COMM.

1 Click the button **EXP. COMM.**

2 From the pull-down menu, select **DIAGNOSTICS 1** in order to check the acceptance gate and **DIAGNOSTICS 2** in order to check the sensors and close the window with **OK**.

The communication between the vending machine and the coin validator is shown in the two windows.

After the Diagnostics 1 command has been sent, you must be able to hear the coin validator attract the acceptance gate.

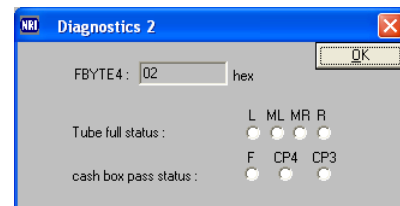
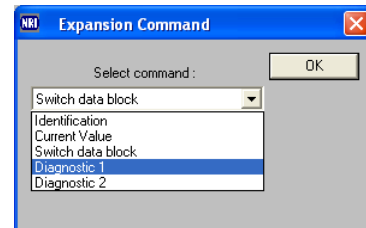
The hexadecimal reply of the coin validator to the Diagnostics 2 command is also displayed in an information window:

TUBE-FULL STATUS marked = tube-full sensor sends the signal that the connected payout unit is full and that the respective coin is being sorted into the cash-box from now on (only G-40.F500).

F marked = one of the sensors in the coin validator is disturbed by external light

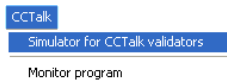
CP3 marked = Accepted coin sensor covered (e.g. by coin jam) or defective

CP4 marked = sensor of the sorting control system covered (e.g. by coin jam) or defective



Simulate cctalk coin validator functions

- Initialization
- Coin acceptance and sorting
- cctalk commands



These tests are carried out using the cctalk coin validator simulator, which you call up by selecting the menu item **CCTALK** in the main menu and then **SIMULATOR FOR CCTALK COIN VALIDATORS**.

Ignore sorter path, redirect coins into default sorter path

Sorter path for cash-box and redirected coins

Manufacturer data and device data

cctalk coin output

Coin ID

Coin inhibited/enabled by vending machine

cctalk sorter path (with several sorter paths: left-hand = preferred, right-hand = alternative sorter paths, e.g. for "Full" signal)

Delete texts in windows

All vending-machine-to-coin-validator commands to be simulated (NRI-supported)

Most important vending-machine-to-coin-validator commands to be simulated

Communication between vending machine and coin validator

Sorter Ov Df

Identification

Company : NRI Software : 340005
Equipment ID : Coin Acceptor Serial number : 1001
Build code : ITA Polling Priority : 200 ms
Product Code : G40 Database num. : 0

Cointype

Coin 1	Coin 2	Coin 3	Coin 4
Coin ID : EU010A	EU020A	EU040A	EU100A
Inhibit Stat. : enabled	enabled	enabled	enabled
Sorter Path : 1	2	3	4

Coin 5	Coin 6	Coin 7	Coin 8
Coin ID : EU200A	EU400A		
Inhibit Stat. : enabled	enabled	enabled	enabled
Sorter Path : 5	6	7	8

Coin 9	Coin 10	Coin 11	Coin 12
Coin ID :			
Inhibit Stat. : enabled	enabled	enabled	enabled
Sorter Path : 8	7	6	5

Coin 13	Coin 14	Coin 15	Coin 16
Coin ID :			
Inhibit Stat. : enabled	enabled	enabled	enabled
Sorter Path : 4	3	2	7

CCTalk commands

Reset Inhibit Status Sorter Path
Status Sorter Override Read

Sim commands

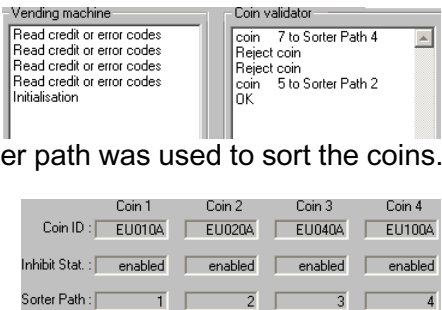
Clear Window
Header Table
Header

When the simulator is opened, the coin validator is initialized according to cctalk specifications. If the COIN VALIDATOR window displays "OK", the initialization was successful, and the coin validator is ready for operation.

Check coin acceptance and sorting

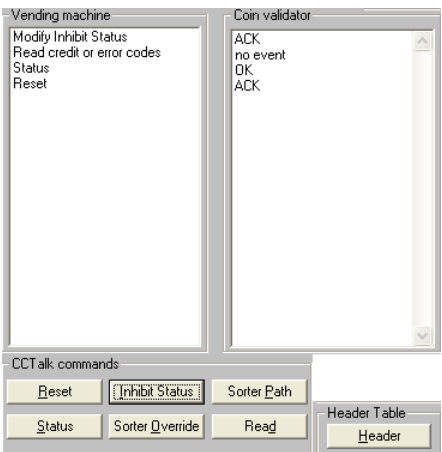
When you insert coins into the coin validator, the coin validator window shows you whether or not a coin was accepted. If a sorting device is connected, you will also see which sorter path was used to sort the coins.

Which coin ID the respective coin has is something you will find resolved under COIN TYPE.



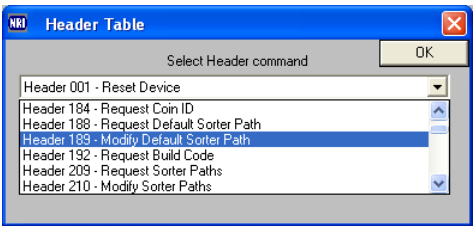
Execute cctalk commands

This section describes how you can check whether the coin validator is reacting correctly to cctalk commands sent by the vending machine. The cctalk commands are simulated using the buttons on the bottom left-hand side. Commands and replies are displayed in the two windows above the buttons.



Header

By clicking on the button **HEADER**, you will go to a pull-down menu, in which you will find a list of all cctalk commands supported by NRI coin validators. By selecting a header, the command is sent to the coin validator, and the communication between master and slave is shown in the two windows.



The following sections describe the simulation of the most common commands in detail. Each of these commands is triggered directly via its own button and must not be selected from the pull-down menu.



For more information on the individual commands, please refer to the specification "cctalk Serial Communication Protocol, Generic Specification 4.2" at www.vending.org.

If several commands have already been carried out and the windows are now very full with written data, commands and replies can be deleted using the button **CLEAR WINDOW**.

Clear window

Address coin validator via vending machine (READ credit or error codes, header 229)

Read

To test whether the coin validator is reacting to the vending machine, simply click the button **READ**.

The communication between the vending machine and the coin validator is shown in the two windows.

Re-initialize coin validator by means of vending machine (RESET, header 001)

RESET

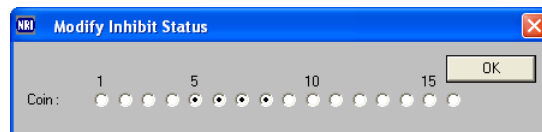
To test whether the coin validator is being re-initialized by the vending machine, simply click the button **RESET**.

The communication between the vending machine and the coin validator is shown in the two windows.

Enable/inhibit coin acceptance (INHIBIT STATUS, header 231)

If you want to check whether the coin validator is actually rejecting or accepting the coins inhibited or enabled via the vending machine:

Inhibit Status

1 Click the button INHIBIT STATUS.

A dialog box opens in which the acceptance of the 16 coins is displayed (marked coins are enabled (here: coins 5–8), not marked coins are inhibited).

2 Enable/inhibit the desired coin(s) by clicking the white input field and close the window with **OK.**

The communication between the vending machine and the coin validator is shown in the two windows.

The coin acceptance is also displayed in the field COIN TYPE.

Coin 5	Coin 6	Coin 7	Coin 8
Coin ID : EU200A	EU400A		
Inhibit Stat. : enabled	enabled	disabled	disabled

3 Insert the respective coins into the coin validator.

Whether the inhibited coins are being accepted by the coin validator or whether enabled coins are being rejected is shown again in the two windows.



For more information about coin acceptance, please see the section "Check coin acceptance and sorting" in this chapter.

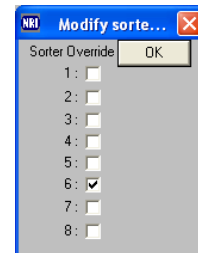
Direct coin into cash-box chute instead of into sorting chute (default sorter path) (SORTER OVERRIDE, header 222)

If you want to check whether the coins redirected via the vending machine into the cash-box are indeed not being sorted any longer via the preset sorter path but are being directed via the default sorter path into the cash-box instead:

Sorter Override

1 Click the button **SORTER OVERRIDE**.

A dialog box opens in which the available 8 sorter paths are displayed (tick = sorter path (here: 6) is skipped, and the coins are sorted via the default sorter path instead).



2 Tick the sorter path(s) of the coin(s) to be redirected by clicking the respective item and close the window with **OK**.

The communication between the vending machine and the coin validator is shown in the two windows.

The redirecting operation into the cash-box is also displayed in the field **SORTER**.

3 Insert coins redirected into the cash-box into the coin validator. Whether the coins are sorted or directed into the cash-box (default sorter path (here: 1)) is shown again in the two windows.



Change sorting (SORTER PATH, header 210)

If you want to check whether the coin validator is taking the changed sorting setting into account:

Sorter Path

1 Click the button SORTER PATH.

Coin 1	Coin 2	Coin 3	Coin 4	Coin 5	Coin 6	Coin 7	Coin 8
1	1	1	1	2	3	4	5
Coin 9	Coin 10	Coin 11	Coin 12	Coin 13	Coin 14	Coin 15	Coin 16
1	1	1	1	1	1	1	1

A dialog box opens in which the current sorter paths of the available 16 coins are displayed.



With several sorter paths per coin, the left-hand sorter path stands for the preferred sorter path and the right-hand sorter paths for the alternative sorter paths, e.g. in the case of a full signal.

2 Use the keyboard to enter the desired sorter path (1–8) and close the window with **OK.**

The communication between the vending machine and the coin validator is shown in the two windows.

The sorting is also displayed in the field COIN TYPE.

Coin 1	Coin 2	Coin 3	Coin 4
Coin ID : EU010A	EU020A	EU040A	EU100A
Inhibit Stat : disabled	disabled	disabled	disabled
Sorter Path : 1	1	1	1

3 Insert the coins to be sorted into the coin validator.

Whether the coins are being correctly sorted is shown again in the two windows.

Query coin return and string recognition (STATUS)

STATUS

If you want to query a pressed return lever or detected string, click the button **STATUS**.

The communication between the vending machine and the coin validator is shown in the two windows.

PART B—Record master-slave communication

B1 Installation

In this chapter you will find out how to

- Install WinSPT on a laptop/notebook/PC
- Connect the device environment in order to be able to record the communication between a master and a slave on site
- Start WinSPT

Install WinSPT on a laptop/notebook/PC

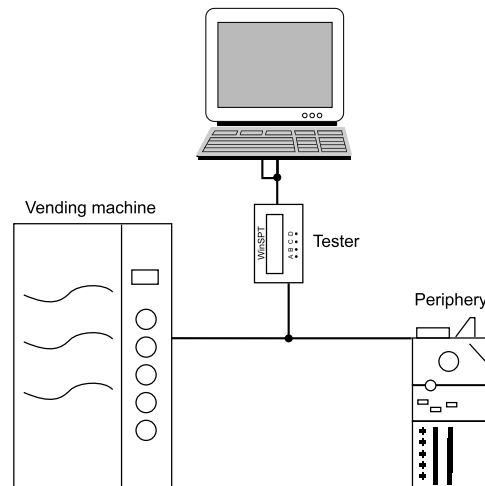
The NRI test software WinSPT is supplied on a CD-ROM. To install the program from the CD-ROM on the hard disk of your PC, please proceed as follows:

- 1** Close all open programs on your computer.
- 2** Insert the WinSPT CD into the CD-ROM drive.
- 3** Open Windows Explorer and use a double-click to start the installation file "WinSPT.exe" in the CD-ROM drive.
- 4** To ensure proper installation, follow the instructions on the screen. The program is stored on the hard disk of your computer, and the WinSPT icon  is saved on the desktop and in the start menu, so that you can start the program easily.

Before you start the software, it is advisable to connect the device environment first so that the installed software can access the connected master and slave directly.

Install device environment

To record the communication between an MDB/S1, BDV/Simplex V, cctalk or JVI/VCCS master and slave, the laptop/notebook is connected between the vending machine and the peripheral unit as shown in the following illustration:



- 1** Connect the tester G-19.0654 at the "COM"-labelled or "USB-labelled" interface via the PC connecting cable to a COM/USB interface of the PC.
- 2** Connect the tester G-19.0654 at the "MDB"-labelled interface:
 - for MDB slave devices, connect with the enclosed MDB Y connecting cable (G-13.mft MDB and G-18.mft MDB additionally with the MDB S1 adapter cable 21437 and MDB S1 3-fold connecting cable 26197).
 - for S1 slave devices, connect with the enclosed MDB Y connecting cable and that cable with the MDB S1 adapter cable 21437 and MDB S1 3-fold connecting cable 26197).
 - for cctalk slave devices, connect with the MDB Y cable and cctalk Y connecting cable 25590.
 - for BDV/Simplex V slave devices, connect with the MDB Y connecting cable and BDV Y connecting cable 26217 (+ Simplex V adapter cable 7114).
 - for JVI/VCCS slave devices, connect with the enclosed MDB Y connecting cable and JVI Y connecting cable 26215.
- 3** Connect the vending machine and slave device to each other using the appropriate Y connecting cable.

The display of the tester indicates MDB TESTER.



Since the tester is supplied with voltage via the serial bus, it does not need to be connected to the power supply system via the enclosed power pack.

Start WinSPT

The program can be opened the easiest way

- by double-clicking on the WinSPT icon  on the desktop or
- via the Windows **START** menu, **PROGRAMS** and  **WINSPT**.

You will go to the main menu of the software.



Select USB/COM port

If the device environment has been correctly connected, but WinSPT is still unable to establish connection with the device (error message), the device environment may be connected to a USB or COM interface that is not identical to the one selected in the program.



To select the correct serial port, you simply need to select the menu item **INTERFACE** in the main menu and then the respective **USB** or **COM** port.

The selected interface is provided with a tick in the pull-down menu.

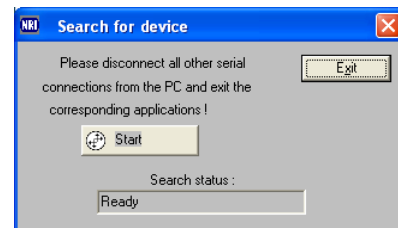
If the interface is not known, you can also use WinSPT to search for the correct port:

- 1 Disconnect all other serial connections that are still connected to the PC, with the exception of the WinSPT test station, and close the respective programs.
- 2 In the main menu, select menu item **INTERFACE** and then **SEARCH FOR DEVICE**.



- 3 In the dialog box, click **START**.

WinSPT searches for the port to which the tester is connected and shows you the interface.



- 4 Select the interface that was found with **SAVE & EXIT**.
The dialog box closes.



B2 General program settings

This chapter describes all the settings which solely relate to the WinSPT program and not to the devices connected.

Set menu language



The WinSPT software is available in German and in English. To select the other respective language, you simply need to select the menu item **LANGUAGE** in the main menu and then **DEUTSCH** or **SPRACHE** and then **ENGLISH**.

The software texts are displayed in the selected language.

Show and hide status/help texts

The bottom status bar of the program shows you information and aids regarding the respective dialog window selected. If you do not require this help, you can hide the status bar.



In the main menu, select the menu item **VIEW** and then **STATUS BAR**.

To show the status bar again, simply repeat these two steps.

B3 **Recording of master-slave communication**

In this chapter you will find out how to record the communication between an MDB/S1/BDV/Simplex V/cctalk/JVI/VCCS master (vending machine) and a connected peripheral unit (changer/bill validator/cashless payment system/coin validator). You will have the following options:

- Start and stop the recording
- Search for a specific command or reply in the recording
- Mark important passages in the recording
- Store or print out a recording as a file for another user
- Delete a recording
- Load a stored recording

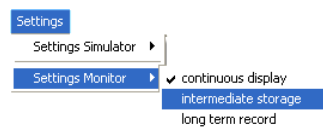
Presettings for the recording

Before going to the recording of the data transmission, perform the settings described in the following sections first.

Intermediate storage operations instead of continuous display (only for slow computers)

To ensure that the data quantities can be recorded without any problems, you must define their form of representation depending on the quality of your laptop/notebook prior to the recording.

Fast laptops/notebooks are capable of recording and presenting the data quantities accumulating during the transmission continuously. For slower computers, you have the option of calling up intermediate storage operations of 20 KB, which are overwritten each time the next intermediate storage operation has been called up. This allows you to collect and analyse all the data even with older computers.



For slower computers, select the option "Intermediate storage" by clicking the menu item **SETTINGS** in the main menu, then ... **MONITOR** and then **INTERMEDIATE STORAGE**.

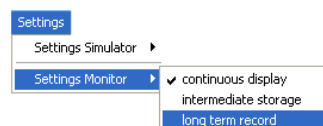
Now you can use the so-called monitor to record the communication and analyse the recording.



If you selected "Intermediate storage", the data will not be directly displayed as soon as the recording is started, but only when the recording is stopped (see section "Start and stop recording" in this chapter).

Preset long-term recording

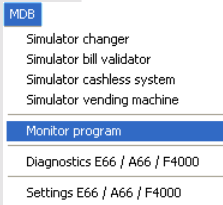
If the data transmission between master and slave is to be recorded over a long period of time, you can preset WinSPT so that the recording is stored continuously in the form of files for later analysis and must not always be restored again. You will find these automatically stored files in the Long Term folder in the WinSPT directory.



For a long-term recording, select the menu item **SETTINGS** in the main menu, then ... **MONITOR** and then **LONG-TERM RECORD**.



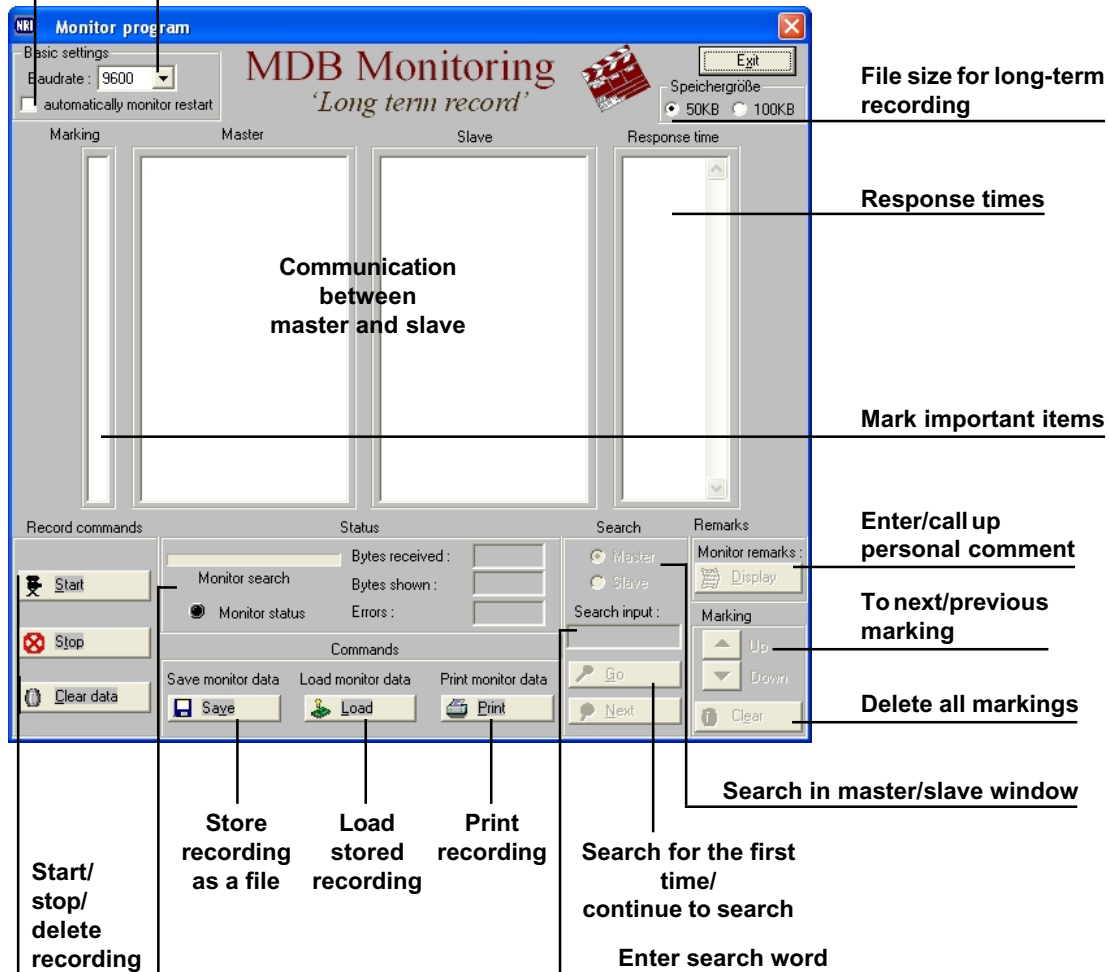
After calling up the monitor, you can also set the system so that a laptop connected to the vending machine starts up automatically together with the vending machine, so that WinSPT starts the recording.



To call up the monitor, select the menu item of the respective device interface in the main menu, e.g. **MDB**, and then **MONITOR PROGRAM**.

Autostart for long-term recording

Transmission rate for MDB/S1 protocol



Connection status during the recording:
 black = no recording/recording stopped
 green = no error during recording
 red = error during recording (check installation)

Perform basic settings

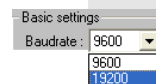
Perform the following settings first:

- the transmission rate (only MDB/S1)
- the memory size of the files for a long-term recording
- the autostart for a long-term recording

Set transmission rate (only MDB/S1)

The data is transmitted in different rates depending on the connected MDB/S1 slave device.

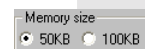
In WinSPT, this BAUD RATE must be selected from the pull-down menu on the top left-hand side.



Set memory size for files from long-term recording

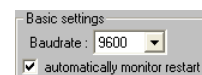
The files that are automatically stored on your hard disk (in: 1 Programs, 1 WinSPT, 1 Long Term), can have a size of 50 or 100 KB.

Select the MEMORY SIZE on the top right-hand side of the monitor screen.



Set autostart for long-term recording

If WinSPT is to start the data transmission whenever the vending machine and the connected laptop run up, activate the AUTOMATIC MONITOR RESTART on the top left-hand side of the screen.



Start and stop recording

If you have connected the master and the slave correctly via the computer and the tester to one another and have made the presetting, if necessary, you can start the recording:



1 Click **START**.

WinSPT records the data transmission with response times and displays the data transmission in the three windows (MASTER/SLAVE/RESPONSE TIME).



*The **MONITOR STATUS** should always be illuminated in green; the master and slave are then correctly connected, and the monitor is running and recording. If the **MONITOR STATUS** is illuminated in red or if an error message is displayed, the connections or the serial interface must be checked (see Chap. B1 "Installation").*

Master	Slave	Response time
0b	00*	0 us
0b* 0b	00*	16 us
0b* 0b	00*	57 ms
0b* 0b	00*	1328 us
0b* 0b	00*	212 ms
0a* 0a	00*	1336 us
00	00 00 01 00 00 00 00 00	221 ms
0b* 0b	00 00 00 00 00 00 00 00	1336 us
	01*	11432 us
	00*	1416 us
		11080 us
		155 ms
		1368 us



2 Click **STOP** when you have tape-recorded enough information.

WinSPT stops the recording.



*If you selected "Intermediate storage" for the form of representation of the recording, the data will be stored when the recording is started, but the data will not yet be displayed. The first 20 KB are not displayed in the windows until the recording has been stopped (see **STATUS** field **BYTES RECEIVED**/**BYTES SHOWN**).*

Bytes received :	20
Bytes shown :	20

Search for command/reply

Instead of having to "read through" all the data, you can search for a specific command or reply:

- 1 In the field **SEARCH**, select **MASTER** or **SLAVE** depending on whether you want to search for something in the **MASTER** window or in the **SLAVE** window.

- 2 Below that field, enter the search word.

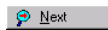
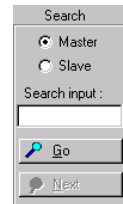
- 3 Click **GO**.

WinSPT searches the respective window for the entered word and marks it as soon as it has been found.

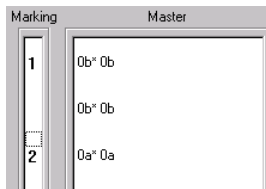
- 4 Mark any place you consider to be important (a total of nine markings are possible, see section "Mark an important place in the recording" in this chapter).

- 5 With **NEXT**, search, if necessary, for the next place in the text.

- 6 Repeat steps 4 to 5 until you have found all the desired places in the text and, if necessary, marked them.



Mark an important place in the recording



If you want to mark an important place in the recording in order to be able to find it later quickly, simply click **MARKING** in the left-hand column at the level of the relevant place.

A marking is set. By clicking again, this marking is deleted again.

A maximum number of nine markings can be set. After that, several markings must be deleted first in order to be able to continue marking.

Skip to marking



The fastest way to get to the individual markings is not by scrolling but by clicking the arrow buttons in the field **MARKING**.

Delete marking(s)



You can delete individual by clicking the marking in the left-hand column or you can delete all the markings set in the recording by clicking the button **CLEAR** in the field **MARKING**.

Store recording as a file

To be able to send a recording and restore it later (also at a different computer) for an analysis, you can store the recording as a file:

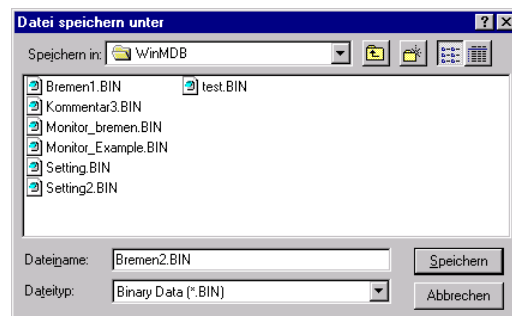
1 Before storing the recording, provide it with a personal comment, if necessary (see next section).

2 In the field COMMANDS, click the button **SAVE**.

3 Give the .bin file a clear name and click **SAVE** to store the file in the suggested folder WINSPOT or in a newly created folder.

4 Close information window with **OK**.

The recording was stored in the desired folder and can now be sent or opened later in the monitor and be analysed there.



Provide recording with personal comment

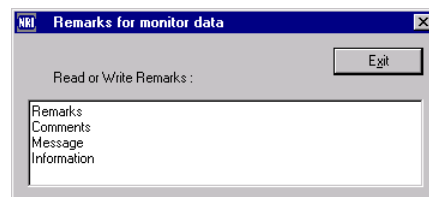
To label the recording for yourself or for another user, (e.g. with the name of the recorder, place and time, etc.), you can provide the recording with a comment:



1 In the field REMARKS, click the button **DISPLAY**.

2 Enter your personal text (max. five lines, that are displayed) and close the window with **EXIT**.

Your comment was stored for this recording and can always be called up again when this recording is loaded.



Print recording

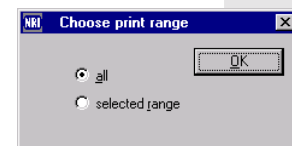
You have the option of printing out a recording (all four windows incl. markings and response times) either completely or in extracts.

Print complete recording

To print out a recording completely:



- 1 In the field COMMANDS, click the button **PRINT**.
- 2 In the dialog box, select **ALL** and close the box with **OK**.
- 3 Perform usual printing settings and print out the recording.



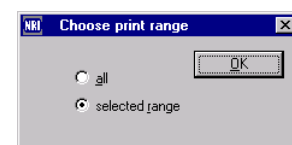
Print extract from a recording

To print out a recording in extracts:

- 1 Mark the extract in one of the three right-hand windows (MASTER/SLAVE/RESPONSE TIME):
 - either: move the mouse over the area to be printed
 - or: click on the beginning of the area, press [Shift] and click on the end of the area



- 2 In the field COMMANDS, click the button **PRINT**.
- 3 In the dialog box, select **SELECTED RANGE** and close the box with **OK**.
- 4 Perform usual printing settings and print out the recording.



Delete recording



Clear data

If you want to delete a recording displayed in the windows, simply click, in the field RECORD COMMANDS, the button **CLEAR DATA**.

Now a new recording can be made (see section "Start and stop recording" in this chapter).

Load stored recording

To load a recording that was previously stored as a file, your computer does not need to be connected to the device environment:



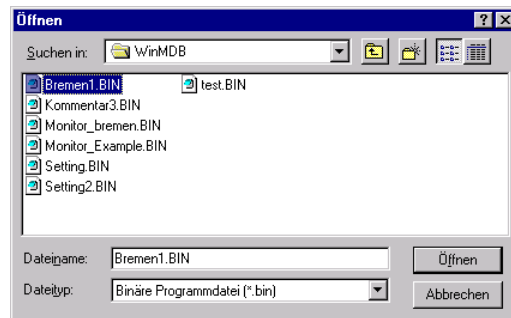
Load

1 In the field COMMANDS, click the button **LOAD**.

2 Select the desired .bin-file from the suggested folder WINSPOT or from another folder and load with **OPEN**.

3 Close information window with **OK**.

The recording is displayed with the response times and all set markings and can be analysed and edited.



Call up comment on the recording

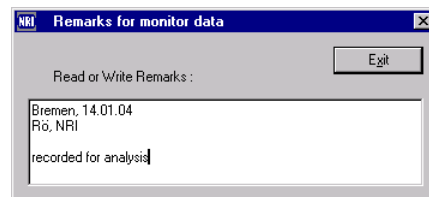
To call up the personal comment about the loaded recording:



Display

1 In the field REMARKS, click the button **DISPLAY**.

2 Read the comment and, if necessary, change or supplement it (max. five lines, that are displayed) and close the window with **EXIT**.



5 Exit program

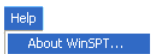


If you have tested and checked the connected device sufficiently, and you now want to close WinSPT, simply select the menu item **FILE** in the main menu and then **EXIT** or .

6 WinSPT update

Display version number of the installed WinSPT software and tester software

If you want to have the currently installed version of the WinSPT software and of the tester software displayed:



- 1 In the main menu, select menu item **HELP** and then **ABOUT WINSPT**.

An information window opens with the software version and information about the manufacturer.

In addition, upon opening the window, the version number of the tester software is indicated in the display of the tester.



- 2 Close the information window with **OK**.

Install new version of the WinSPT software

The latest version of the WinSPT software is made available to you on the NRI homepage.

To download the current WinSPT version:

- 1 Open the NRI homepage (www.nri.de) on the Internet.
- 2 Call up the page for product downloads.
- 3 Select the desired update and download it onto the hard disk of your PC.
- 4 In Windows Explorer double-click the file on the hard disk drive.
The software update is then installed and automatically replaces your previous WinSPT version.

7 Status and error messages

Error message	Description	Cause	Remedy
<u>Main menu</u>			
BOOT FILE NOT FOUND!	WinSPT searches for "Boot.def" files that were saved in the WinSPT folder on the hard disk during installation	File is no longer located in the WinSPT folder	Reconfigure the file in WinSPT folder, or install WinSPT again (see Chap. A1 "Installation")
BOOT DATA INCORRECT!	WinSPT cannot load file "Boot.def"	File was opened and its contents changed	Save original Boot.def file in WinSPT folder, or install WinSPT again (see Chap. A1 "Installation")
OPEN COM ERROR! CHANGE COM PORT!	WinSPT cannot communicate with the connected device	Tester connected to a different PC port to the one selected in WinSPT	Select the correct PC port in WinSPT or search for PC port (see Chap. A1 "Installation")
		PC port selected in WinSPT assigned to another external device.	Select the correct PC port in WinSPT or search for PC port (see Chap. A1 "Installation")
TOO MANY TUBE COINS! PROGRAM UNUSABLE!	WinSPT recognizes more than eight programmed tube coins in the connected coin changer	WinSPT is only designed for diagnostics of coin changers with a maximum of eight tube coins	WinSPT cannot be used for diagnostics of this coin changer

Error message	Description	Cause	Remedy
<u>Simulators</u>			
INITIALISATION OF THE TESTER IS FAULTY!	WinSPT cannot communicate with the connected device	Connection faulty	Check the connection of the device environment and correct if necessary (see Chap. A1 "Installation")
		USB connection is not supported by current tester software Tester connected to a different PC port than the one selected in WinSPT	Flash the tester's microprocessor with the new software (contact NRI) Select the correct PC port in WinSPT or search for PC port (see Chap. A1 "Installation")
COMMUNICATION TIMEOUT	WinSPT cannot communicate with the connected MDB slave device	Connection faulty	Check the connection of the device environment and correct if necessary (see Chap. A1 "Installation")
		Protocol cannot be simulated by current tester software	Flash the tester's microprocessor with the new software (contact NRI)
		Connected slave device defective	The device is so defective that it can no longer be checked with WinSPT

Error message	Description	Cause	Remedy
<u>Diagnostics/Settings</u>			
No NRI COIN CHANGER CONNECTED!	WinSPT does not recognize any NRI coin changer	WinSPT can only give detailed diagnostics for new NRI coin changers WinSPT can only configure new NRI coin changers	WinSPT cannot give diagnostics for the connected device The connected device cannot be configured with WinSPT
DIAGNOSTICS FOR NRI G-46 COIN CHANGER STILL NOT POSSIBLE!	WinSPT recognizes an NRI coin changer G-46.4	WinSPT can only give detailed diagnostics for new NRI coin changers WinSPT can only configure new NRI coin changers	For the connected device no diagnostics can be created with WinSPT. If necessary use the NRI PC configuration software WinEMP The connected device cannot be configured with WinSPT If necessary use the NRI PC configuration software WinEMP, or the palm applications PalmEMP und PalmG46

Error message	Description	Cause	Remedy
<u>Monitor</u>			
TESTER DOES NOT REACT!	WinSPT cannot communicate with the connected device	Connection faulty USB connection is not supported by current tester software Tester connected to a different PC port than the one selected in WinSPT	Check the connection of the device environment and correct if necessary (see Chap. B1 "Installation") Flash the tester's microprocessor with the new software (contact NRI) Select the correct COM port in WinSPT or search for COM port (see Chap. B1 "Installation")
NO COMMUNICATION RECEIVED! CHECK TESTER AND CONNECTION! RESTART!	WinSPT cannot communicate with the connected device	No communication over the Bus Connection faulty Tester connected to a different PC port than the one selected in WinSPT	Check the vending machine control Check the connection of the device environment and correct if necessary (see Chap. B1 "Installation") Select the correct COM port in WinSPT or search for COM port (see Chap. B1 "Installation")
ERROR LOADING DATA COMMENTS!	WinSPT cannot load comment on the recording saved in bin-file	bin-file faulty	Recording must be saved as a file before its comments can be displayed
ERROR LOADING DATA!	WinSPT cannot load recording saved as bin-file	bin-file faulty	Recording must be saved as a file before it can be loaded and analysed
ERROR! NO SETTINGS FOUND!	WinSPT cannot load recording saved as bin-file	bin-file faulty	Recording must be saved as a file before it can be loaded and analysed
FILE NOT FOUND!	WinSPT cannot load recording saved as bin-file	bin-file faulty	Recording must be saved as a file before it can be loaded and analysed
ONLY 9 MARKINGS POSSIBLE!	WinSPT should mark the tenth important position in the recording	Only 9 positions can be marked	At least one marking must be deleted before further positions can be marked (see Chap. B3 "MDB recording")

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Glossary

Accepted coin sensor	The accepted coin sensor is positioned in front of the coin outlet of an NRI coin validator and checks whether accepted coins fall unhindered into the cash-box chute or into a → <i>sorting chute</i> .
Alternative payout	An MDB payout mode preset in the vending machine according to which the vending machine uses a signal to tell the changer which value the changer must pay out. The changer determines which coin(s) is/are paid out. The changer answers by telling which coins it has paid out and how often.
Base value	→ <i>Smallest coin value</i>
BDV	Further development of the → <i>Simplex V protocol</i> .
Cassette	→ <i>Tube cassette</i>
cctalk	cctalk defines a serial interface from the coin validator to the vending machine. The cctalk protocol is specified in the "cctalk Serial Communication Protocol, Generic Specification 4.2" (www.cctalk.org). The serial bus provides master-slave communication, whereby the vending machine functions as a master and the coin validator as a slave.
Change tubes	The → <i>tube cassette</i> of the NRI E-66/A-66 changer includes four change tubes "left", "middle left", "middle right" and "right", into which one (or – depending on the diameter – also two) coin type(s) is/are sorted in order to be directed back, if necessary, into the return area as change for the customer. It is possible to provide several tubes for the same coin type. The coins will be sorted into the left-hand tube first and then into the right-hand tube(s) of the selected tube(s), and the coins will be paid out of the right-hand tube first and then out of the left-hand tube(s). If a coin has not been configured as a tube coin, it is directed into the cash-box.
Coin tube	→ <i>Change tube</i> , → <i>Tube cassette</i>
Coin value	The value of a coin type that must be transmitted to the vending machine.
COM port	Serial interface on the PC for the connection of external devices.
Dispense	An MDB payout mode preset in the vending machine according to which the vending machine uses a signal to tell the changer which coin the changer must pay out and how often. The changer does not confirm that it has paid out coins.

Executive

= → Simplex V

Filling level sensors

Regardless of the coin quantity being monitored by the → *tube counters*, the filling level of each tube is measured by four sensors in the case of NRI E-66/A-66 changers:

- Empty sensor positioned at the height of 8 to 10 collected coins
- 50% sensor
- 75% sensor
- Full sensor positioned at the upper edge of the tube

If the "full" sensor of a tube triggers the message "tube full", all further coins for this tube will be directed automatically to the cash-box. Only when coins have been paid out of this tube again, will more coins be sorted into this tube.

Inventory keys

The inventory keys constitute a part of the NRI coin changer's keyboard: keys L, ML, MR, R. These keys are used to pay out one coin, several coins or all coins from the respective change tube L, ML, MR, R. If these keys are not to be operated by service personnel any longer, they can either be disabled on a general basis or so that they can be enabled by means of the vending machine control system.

JVI

Japan Vending Interface. JVI defines a serial interface from the coin validator/changer to the vending machine and is mainly used in the Far East. The serial bus provides master-slave communication, whereby the vending machine functions as a master and the coin validator (inside the changer) as a slave.

MDB

Multi Drop Bus. The abbreviation MDB defines the interface specification for an internal communication protocol. This protocol is specified in "NAMA document MDB/ICP 2.0" (www.vending.org).

The serial bus provides master-slave communication, whereby a master (machine control unit) can communicate with several slaves (changers and bill validators, etc.). To ensure unambiguous communication between the devices, each slave has its own MDB address. The address of the MDB changers and MDB coin validators is "01".

Protocol A

= → Simplex V

S1

This abbreviation defines a serial NRI-specified and → MDB-based interface from the coin validator to the vending machine. You will find detailed information regarding the S1 interface in the NRI S1 specification for the G-40 S1, which we will be pleased to place at your disposal upon your request, as well as in the "NAMA document MDB/ICP 2.0" (www.vending.org). The S1 address of the coin validator is "15".

Simplex V Simplex V defines a serial interface from the coin validator/changer to the vending machine. The serial bus provides master-slave communication, whereby the vending machine functions as a slave and the coin validator (inside the changer) as a master.

Smallest coin value The smallest coin value is the reference value for administering the → *coin values*. The values of all the coin types accepted by the changer must be integral multiples of the smallest coin value.

Sorting chute A coin that has been accepted by an NRI coin validator and must be sorted leaves the coin validator through sorting chutes, which direct the coin further into a connected external payout unit (e.g. hoppers or change tubes). The sorting chutes are arranged differently from one coin validator to another coin validator (transverse sorters or longitudinal sorters).

Stacker Cash-box of a bill validator, in which the accepted bills are collected.

Tube → *Change tubes*

Tube cassette The tube cassette of the NRI E-66/A-66 changer includes four → *change tubes* with various diameters for collecting up to four different coin types, which can be paid out as change to the customer. Which tube can accept which coin, is indicated on the sticker at the top of the tube cassette. The storage capacity of tube coins depends on the thickness of the coin type:

Coin type (EUR)	Coin quantity at 100 % (full sensor)
0.05	87
0.10	76
0.20	68
0.50	61
1.00	62
2.00	65

The coin validator in the changer checks whether an accepted coin – depending on the programming in each case – is to be sorted into one of the four tubes or directed into the cash-box. Should you ever require another combination of tube coins, the matching cassette can be ordered from NRI and then simply be exchanged.

Tube counter

Each → *change tube* in the NRI-E 66/A-66 changer has a tube counter, which monitors the filling level (coin quantity) of the respective tube. Usually after every coin acceptance and pay out, the coin changer compares the tube counter status and the measured filling level of the four → *filling level sensors* and, if necessary, corrects the tube counters. If the vending machine control system is unable to process the automatic correction of the tube counters, the changer can be set so that the tube counters will not be corrected.

After the → *tube cassette* has been emptied, for example, for repairs, the tube counters of the changer for which the automatic tube counter correction has been switched off should be reset for the re-starting operation, so that the tube counters start to count from zero when the tubes are being filled and does not start to count from the stored coin quantity.

USB port

Serial interface on the PC for the connection of external devices.

VCCS

= → *JVI*