Instruction Manual
c-ident Handheld Terminal

Contents

1 Introduction

The handheld terminal is an instrument for logging transponders both in offline and online mode. It stores the collected transponder codes with a time stamp transferring them to a PC, PDA or another receiver via Bluetooth or USB cable using special commands.

We recommend a daily transfer of the collected data in order to avoid a possible loss of data.

1.1 Models

- **c-ident handheld RFID terminal HT1 (FDX/HDX)**
  Handheld reader to display and store the chip contents

  Functions:

  - F2 key: Emptying
  - F4 key: View only
  - F6 key: Read tag

- **c-ident handheld RFID terminal HT2 (FDX/HDX)**
  Handheld reader with chip reader and barcode scanner for bin/chip distribution *(transfer via cable)*

  Functions:

  - F1 key: Barcode-Tag allocation
  - F2 key: Emptying
  - F3 key: Barcode-Barcode allocation
  - F4 key: View only
  - F5 key: Filling level
  - F6 key: Read tag

- **c-ident handheld RFID reader HT7 (HDX)**
  Handheld reader with chip reader, barcode scanner and GPS positioning for bin/chip distribution (transfer via cable)

  Functions:

  - F1 key: Barcode-Tag allocation
  - F2 key: Emptying
  - F3 key: Barcode-Barcode allocation
  - F4 key: View only
  - F5 key: Filling level
  - F6 key: Read tag
  - F8 key: State / GPS position

1.2 Display

The instrument has a 4-line alphanumeric display with 20 characters each. Operation is made via twelve keys situated below the display. You can start reading a transponder or barcode via these keys and set the display or query status functions of the instrument.

1.3 Charging

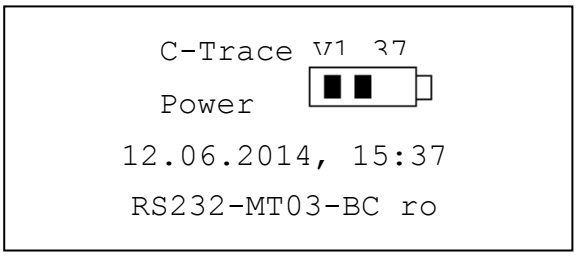
The plug for charging should be used with a power supply of 6VDC and at least 500mA. The middle pin of the plug has to be plus. If you use the handheld terminal as a stationary device, the charging device could be used for supply, too.

The charging of the handheld terminal will be displayed by a red LED between the direction keys. It will go off if charging was interrupted or if it has finished.

1.4 Starting up / Installation

The handheld terminal is powered from 2 batteries type Mignon / AA. Use alkaline batteries or rechargeable NiMH batteries with at least 1500 mAh.

Switch on the instrument via key On/Off. A beep will sound and the display should show a message now:



A further beep will sound when the initialization process is completed; the device is ready for operation now. Ensure proper logging by setting the internal instrument clock before reading.

1.5 Keyboard

You operate the handheld terminal via the sealed keyboard on the instrument front side. The keyboard has the following layout:

The key functions can be switched using the shift key. The blue keys are designed for standard function (F1 … F8, arrow keys, On/Off). A yellow lamp will light above the shift key if you enabled the shift mode by pressing the shift key. Now the key functions of the rectangles are enabled and the numeric keypad is at your disposal (0 … 9, decimal point).

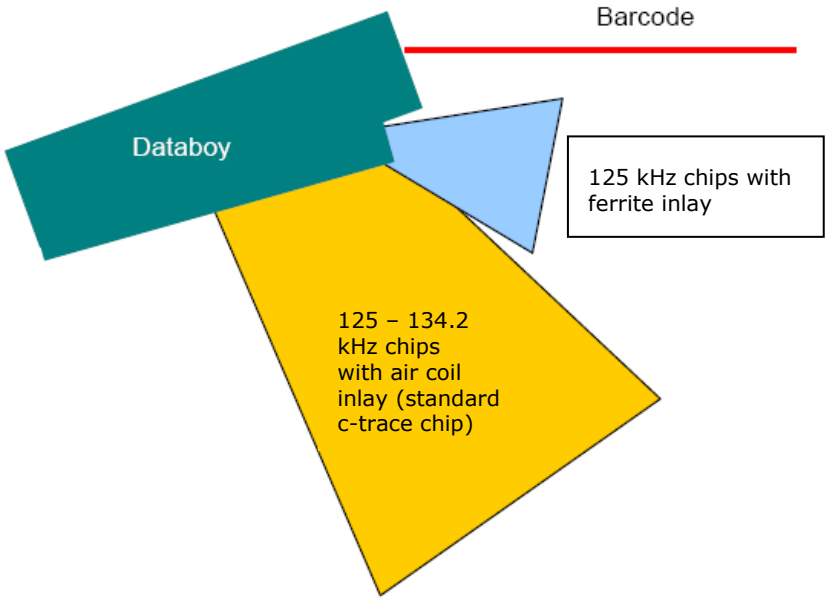
Keys F3 and F6 have been defaulted for the handheld terminal logging function in the master software.

1.6 Setting the Display

You may change the display contrast via the arrow  keys  and on the main screen of the handheld terminal. The contrast set is stored in the device.

1.7 Handheld Terminal Read Range

Press F6 to read the ID number of a chip. The read range of the handheld terminal is located on its underside or front side depending on the respective handheld terminal model. The read range is illustrated in the following:



1.8 Barcode reader

Press F3 to read a barcode. Direct the red laser beam in the direction of the barcode. The device will capture the barcode with its laser beam and show the barcode ID.

Barcodes, which are alphanumeric or longer than 16 characters, cannot be saved; they appear only on the display.

Barcodes can be captured more than once. Thus, it is also possible to store the bar-code at more than one point of time.

2 Functions

The scope of operation depends on the model (see 1.1).

2.1 Main Menu

After turning on the handheld the main menu is displayed after a certain time of initialization. It is also displayed when one of the functions is left and shows the general functions of the handheld reader:

```
F1:       Barcode-TAG
F2:       Emptying
F4:       Barcode-Barcode
F3/F6:    View only
```

If the handheld is switched off in this mode, it will also restart in this mode.

The menu function F1 differs depending on the configured operating mode:

- Read-only transponder (mode 0, ro)
- Read / write HDX transponder (mode 1, rw)
- Read-only transponder with numerical input (mode 2, ni)
- Read / write HitagS256 transponder (mode 3, ht)

The configured mode is displayed in the bottom line of the start screen.

2.2 F1 key: Barcode-Tag allocation

After pressing F1 you are guided through the following sequence:

The device shows the available options. If the handheld is switched off in this mode, it will also restart in this mode.

```
Barcode-TAG
F1:       Main menu
F6:       Read tag
```

Read the transponder by pressing F6. The ID is displayed and the reading process is confirmed by a sound signal. If no transponder was read, an error message appears and the process can be repeated.

```
Barcode-TAG
Tag:       004000000914FA65
F3:        Read barcode
```

Scan the Barcode by pressing F3. The transponder ID and the barcode are displayed and the reading process is confirmed by a sound signal. If no barcode was read, an error message appears and the process can be repeated.

If the handheld terminal is equipped with GPS, the GPS coordinates will be added. The handheld indicates if the GPS data is not available, for example, because the GPS reception in buildings is only possible or the device has only just been turned on and has not received any GPS signal yet. A flashing "*" in the upper right corner indicates that the GPS receiver is operating.

```
                              *


Position unknown
```

You have the possibility to wait until the GPS data is received. This happens automatically as long as the screen is displayed. Or you can cancel the process by pressing F8. The record will then be stored without GPS data.

```
Barcode-TAG
Tag:       004000000914FA65
ID:        100011
Acquisition succeed!
```

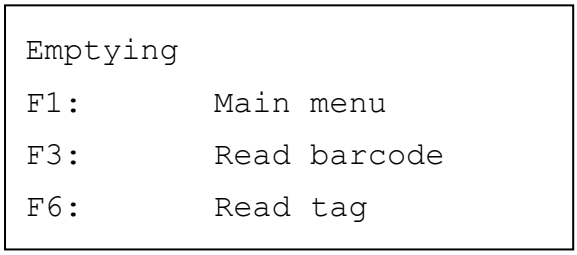
The record is saved. The device stores the following parameters: transponder ID, barcode, time stamp and mode "E". After about one second the request for the next data entry is automatically displayed. If it is not possible to collect further data, e.g. because the memory is full, an error message will be issued.

2.3 F2 key: Emptying

Attention: You can only use this function when a valid licence key for the data takeover is installed in our waste management software c-ware.

After pressing F2 you are guided through the following sequence:

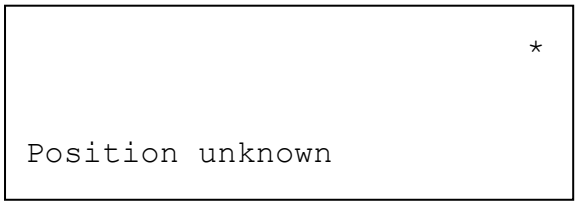
The device shows the available options. If the handheld is switched off in this mode, it will also restart in this mode.



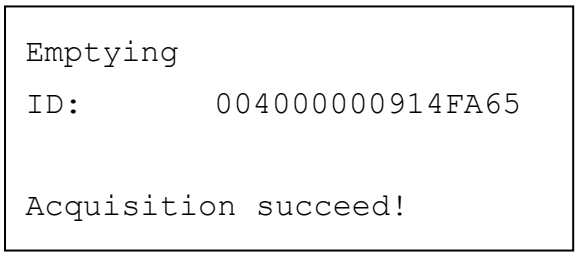
Read the transponder by pressing F6. The ID is displayed and the reading process is confirmed by a sound signal. If no transponder was read, an error message appears and the process can be repeated.

Alternatively, you can scan the barcode by pressing F3 in case there is no transponder or the transponder is defective. The transponder ID and the barcode are displayed and the reading process is confirmed by a sound signal. If no barcode was read, an error message appears and the process can be repeated.

If the handheld terminal is equipped with GPS, the GPS coordinates will be added. The handheld indicates if the GPS data is not available, for example, because the GPS reception in buildings is only possible or the device has only just been turned on and has not received any GPS signal yet. A flashing asterix in the upper right corner indicates that the GPS receiver is operating.



You have the possibility to wait until the GPS data is received. This happens automatically as long as the screen is displayed. Or you can cancel the process by pressing F8. The record will then be stored without GPS data.



The record is saved. The device stores the following parameters: transponder ID, barcode, time stamp and mode "E". After about one second the menu for the next data entry is automatically displayed. If it is not possible to collect further data, e.g. because the memory is full, an error message will be issued.

2.4 F3 key: Barcode-Barcode Allocation

Please note: This function is only available for special projects and cannot be used as a rule!

After pressing F3 you are guided through the following sequence:

The device shows the available options. If the handheld is switched off in this mode, it will also restart in this mode.

```
Barcode-Barcode
F1:       Main menu

F3:       Read barcode
```

2 Scan the first barcode by pressing F3. The barcode ID is displayed and the reading process is confirmed by a sound signal. If no barcode was read, an error message appears and the process can be repeated.

```
Barcode-Barcode
ID1:      100011

F3:       Read barcode
```

Scan the second barcode by pressing F3. Both the barcode ID'S are displayed and the reading process is confirmed by a sound signal. If no barcode was read, an error message appears and the process can be repeated.

If the handheld terminal is equipped with GPS, the GPS coordinates will be added. The handheld indicates if the GPS data is not available, for example, because the GPS reception in buildings is only possible or the device has only just been turned on and has not received any GPS signal yet. A flashing asterix in the upper right corner indicates that the GPS receiver is operating.

```
                              *


Position unknown
```

You have the possibility to wait until the GPS data is received. This happens automatically as long as the screen is displayed. Or you can cancel the process by pressing F8. The record will then be stored without GPS data.

```
Barcode-Barcode
ID1:      100011
ID2:      100012
Acquisition succeed!
```

The record is saved. The device stores the following parameters: transponder ID, barcode, time stamp and mode "V". After about one second the menu for the next data entry is automatically displayed. If it is not possible to collect further data, e.g. because the memory is full, an error message will be issued.

2.5 F4 key: View only

You can use this function to read chips or barcodes without storing the records.

```
View only
F1:       Main menu
F3:       Read barcode
F6:       Read tag
```

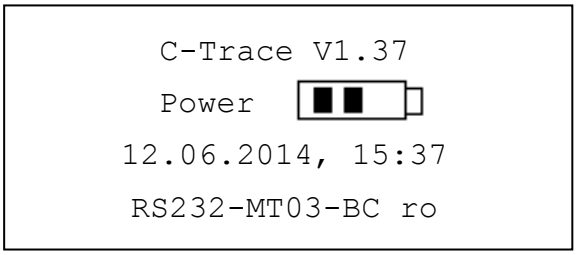
2.6 F5 key: Filling Level

The starting point for demanding the filling level is the main menu. Press F5 and the device displays the filling level. You can store up to 4,000 bookings.

```
Master data
0
Bookings:
143
```

2.7 F8 key: State / GPS position

By pressing F8 the device will display the start screen which indicates the battery charge condition, date and time.



If the handheld terminal is equipped with a GPS receiver, it will determine longitude and latitude of the current position and show this information when pressing the F8 button.

```
Sat.: 5, Alt.: 57m
UTC: 12:45:20
N 50°  49,9432’
E 7°  1.6495‘
```

If the reception is disrupted or the GPS receiver is not ready yet, the position cannot be calculated. It will then display the following information:

```
Satellites: 0
UTC: 12:45:20


Position unknown
```

As soon as the position is available, it will be displayed automatically. This view can be left by pressing F8 button again.

To get a GPS position the following points are important:

- The handheld terminal should be held with its upper side to the sky.
- GPS is especially inside of buildings quite difficult because the roof absorbs the radio frequency.
- Next to doors and windows the GPS might be used successfully.
- The start-up time for GPS depends on the duration since the last use of the GPS system. If the GPS system was used in the last few hours, the start-up time would be only few seconds. Otherwise it can take minutes, depending on the environment the device is used in.

If the transmission fails or the GPS receiver is not yet ready, the position cannot be computed. This can also occur inside of buildings or in very small streets. The following message will be displayed:

As soon as the position is available, it will be displayed automatically. This view can be left by pressing F8 button again.

3 Connection Set-up

To set up the connection, the device must be switched on! The data transfer cable is connected to both the handheld reader, as well as to the computer.

3.1 Data Format

The handheld terminal has an internal memory of up to 4.000 records. Each data set is composed as follows:

Field name	Size	Comment
Barcode	10 digits	Stores the second barcode for allocation. In the emptying mode the field remains blank.
Transponder	16 digits	Stores the transponder ID or the first barcode in the allocation and the emptying mode.
Time stamp	10 bytes	Shows date and time of action.
Mode	1 digits	V for Allocation E for Emptying
Latitude	14 bytes	50°49.867500 N
Longitude	12 bytes	7°1.640070 E

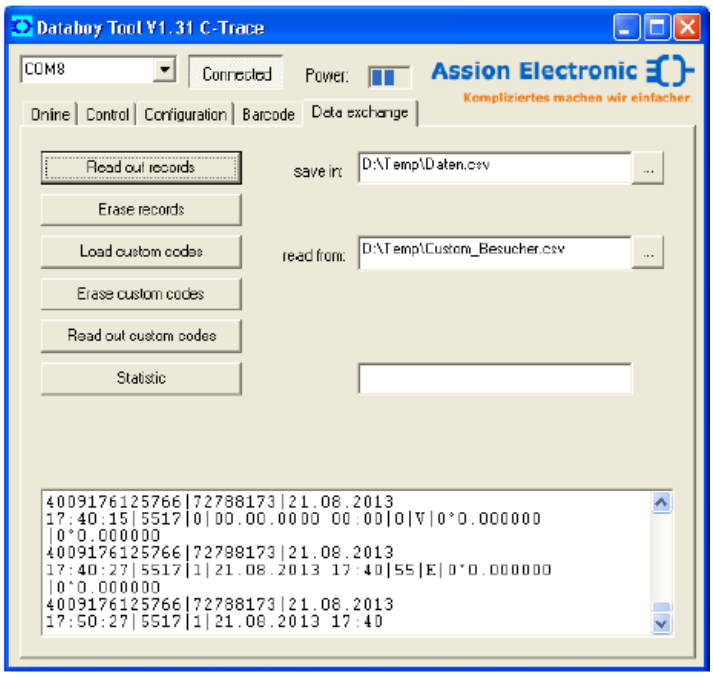
3.2 Data Transfer via Handheld terminal Software

The software is only needed by customers that do not use the c-trace software c-ware.

You will find the handheld terminal software on the CD delivered with the device. Double click on the file and follow the instructions.

Connect the handheld terminal with your computer. Make sure, the correct COM port is selected. If the connection is established, a blue light glows at the device.

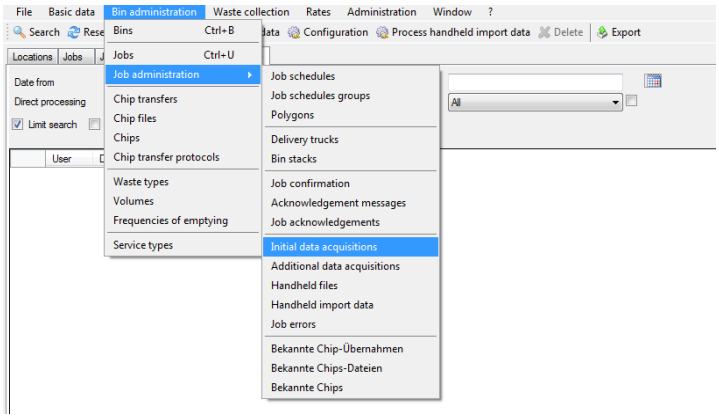
Open the menu *Data exchange ⇨ Read out records* to copy the stored data from the handheld terminal into a text file. This file is structured in CSV format.



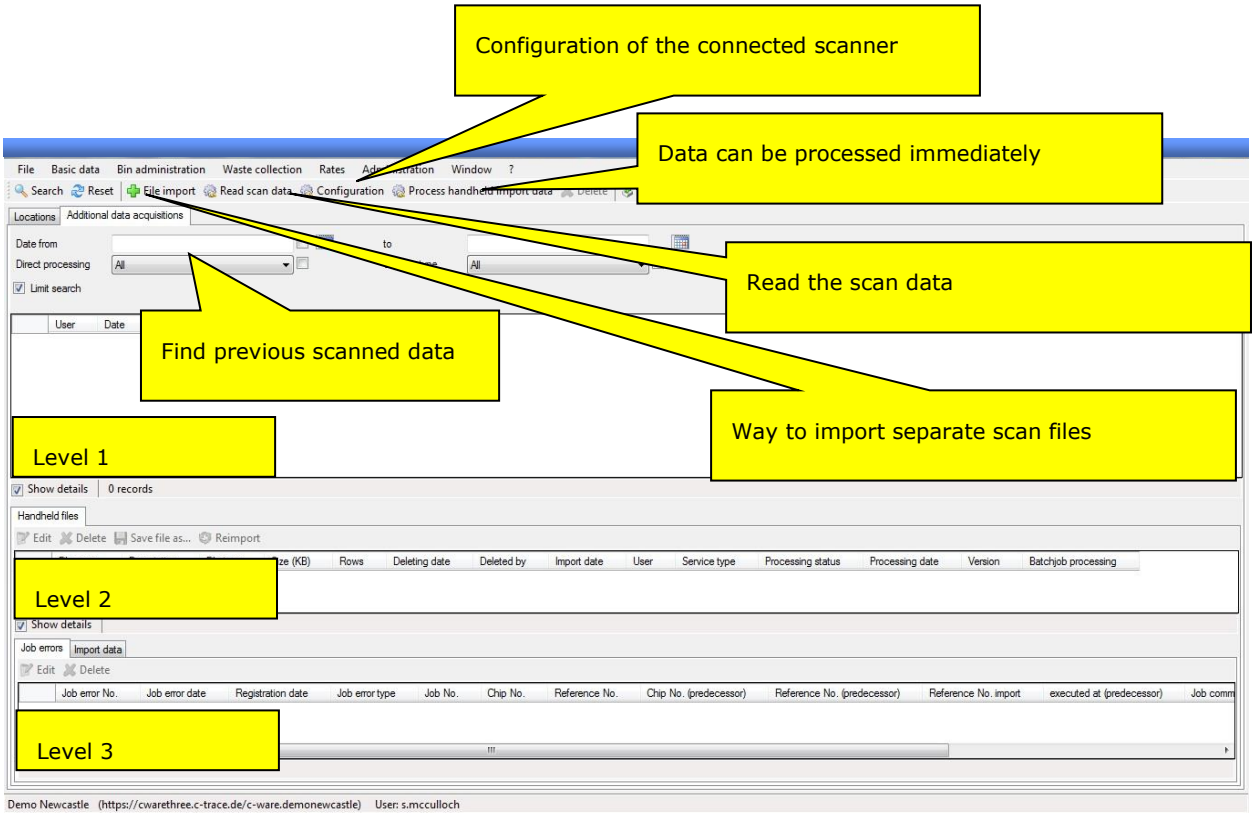
When all records have been transferred successfully, the program issues a confirming message. You can delete the records manually by using the button Erase records.

3.3 Takeover Data from Handheld Terminal

Open the menu *Bin administration* ⇨ *Job administration* ⇨ *Initial data acquisitions*.



The following window opens:



You can now search for the previously-imported data (that was either imported directly or via handheld scanner).

Note: Use this option to look at the recorded data to check whether all the scan data has been recorded in the c-ware!

In the 2nd Level e.g. a file name is automatically generated, individual labelling of the scan file is displayed. You can also see whether the scan file has been processed or not.

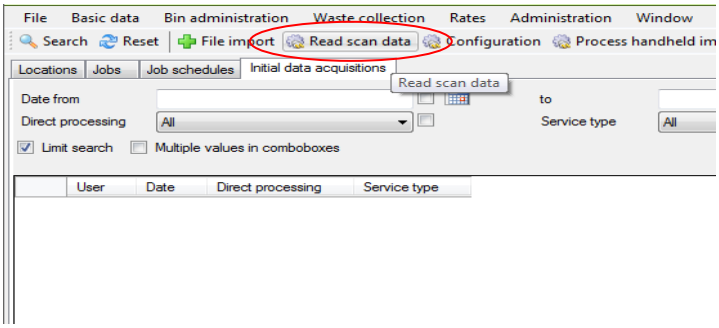
Note: Scan files are typically processed overnight, when there are no c-ware users on line.

If required, the scan data file can be processed quickly by highlighting the file and clicking Edit data.

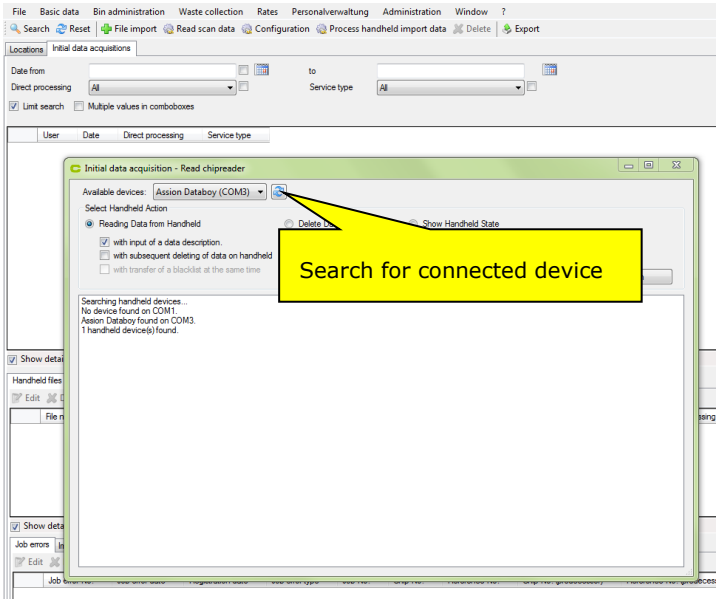
Only processed or being processed scan files are shown in display level 3, the scan data and the display of the data originates from the 2nd Level selected scan jobs.

Note: The automatically generated file name consists of the scanner serial number, date (yymmdd) and time (hhmmss), and relates to the time the data were recorded.

Now click the *Read scan data* button to transfer the data from the handheld terminal.



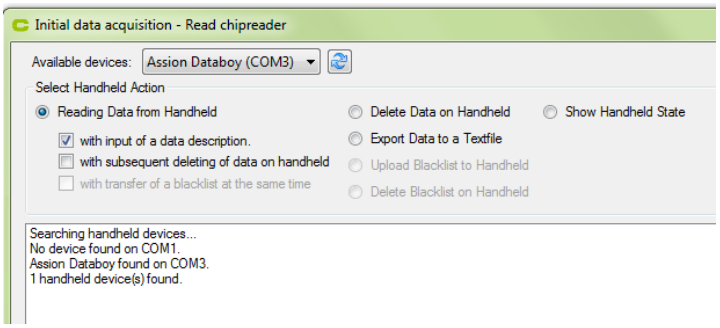
Search for the handheld terminal:



Make sure the hand-held scanner is connected to the PC and turned on and search for connected handheld terminals.

Note: If a terminal has been previously connected, no new search is required. The device will be readily available.

Once a terminal is available, the menu items *Read data from handheld, Delete data from Handheld* etc. are ready for use.



Put a tick in *with input of a data description* if you want the scan file to have an individual remark (e.g., with remarks from the staff, the local authority, etc.). Once you ticked the box, you cannot read data unless you make an entry.

If you do not want to transfer the data, but only empty the handheld reader, just click *delete data on handheld* on.

Proceed as follows:

1) If you want to pre-generate a text file for backup, please choose the box *export data to a textfile* and start the export with the field *Execute action*. If not, continue with step 2.
2) Click the button *Scan data*
3) Enter, if previously enabled, a comment on the scan file.
4) The readout of the data starts. After completion of the data it is automatically transmitted to the c-ware server and made available for processing.
5) Now click the button to *Save raw data* to create and save a backup copy of data as a separate file. For this, the scan data is read again (Tip: You can use this function to scan and extract data only, without copying into c-ware!).
6) If you are sure that the data is recorded, you can now click on the button to delete the data, the scan data in the handheld scanner will be deleted.
7) You may need to perform this procedure with other terminals in the same way; not closing this window allows you to perform this again and again.
8) If you have read all the terminals, close the window and disconnect from the PC.

Note: Emptyings which are generated by means of a handheld terminal are done via a separate menu item.

Do not use a handheld terminal with stored records. Import the data or delete the data if you have already recorded it.

Tip: You can also import files several times. For example, if you are not sure whether the data has been read in, or you have previously entered the wrong scan data remark. However, this should only happen in an emergency because it can lead to problems in certain cases.

Make sure that all data was recorded by searching scan files with current date. Make a comparison between the numbers of scanners and the number of files.

Make sure the batteries on the handheld scanner are charged, check the charge daily.

Note: If you process several different projects with a handheld terminal, please make sure that the correct data is read into the right project.

Technical Data

General	
Overall dimensions (LxWxH)	125mm x 80mm x 36,7mm
Weight incl. batteries	Approx. 250g
Colour	green-blue, similar to RAL 5020
Casing material	ABS
Protection type	IP54
Temperature range	Standard: 0°C to 50°C, Expanded: -20°C to +60°C
Voltage supply	2 batteries / rechargeable batteries, type Mignon AA, min. 1500mAh
Charging voltage	6 V DC, 1 A (Pin: Plus)
Life	8h with rechargeable batteries NiMH 2500mAh
Bluetooth	Class 1 or Class 2
Display	High-contrast LCD display with background lighting and 4 lines with 20 characters each
Keyboard	Sealed keyboard with 12 keys
Memory	8 MBit (1MByte)
Records	max. 8192 master data and 8192 loggings
Chip	
Type 1 (TRV)	Trovan
Type 2 (MT03)	Read Only: Unique(EM4x02), ISO11784/11785 (FDX-B), Tiris HDX Read/Write: Q5, Hitag-1, Hitag-S 256 / 2048, Tiris HDX
Type 3 (MT01)	ISO15693 and I.Code1
Typ 4 (MT02)	ISO15693 or ISO14443-A/B (e.g. Mifare)
Reader antenna	For type 1 and type 2: Ferrite coil for glass transponder or air coil for disk transponder, for instance