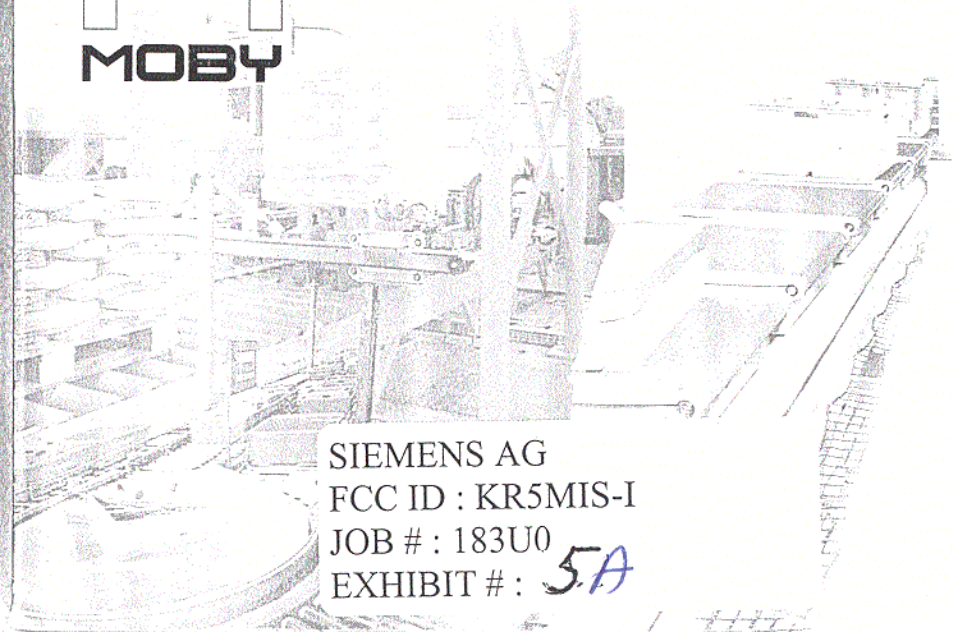
SIEMENS

MOBY
STG Hand-Held Terminal

User's Guide Release 03/2000

Hand-terminal STG

MOBY



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SIEMENS

MOBY

STG Hand-Held Terminal

User's Guide

Table of Contents

General	1
Commissioning the STG	2
Using the STG	3
The "MOBY STG" Program	4
The "FILEHANDLER" Program	5
Expanded Functions	6
The "MOBY" Program with the PSION Numeric Model	7
Error Messages	8
Technical Data	9
Appendix	A

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Published in March 2000

Safety Guidelines

This manual contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. These notices are highlighted in the manual by a warning triangle and are marked as follows according to the level of danger:

Note

draws your attention to particularly important information on the product, handling the product, or to a particular part of the documentation.

Qualified Personnel

The device/system may only be set up and operated in conjunction with this manual.
Only **qualified personnel** should be allowed to install and work on this equipment. Qualified persons are defined as persons who are authorized to commission, to ground, and to tag circuits, equipment, and systems in accordance with established safety practices and standards.

Correct Usage

Note the following:

Warning

This device and its components may only be used for the applications described in the catalog or the technical description, and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens.

This product can only function correctly and safely if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.

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We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are welcomed.

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Table of Contents

1 General E-1
1.1 Application Areas E-1
1.2 Product Description E-1
1.3 FCC Information for the USA E-2
2 Commissioning the STG E-3
2.1 Included Components E-3
2.2 Assembly E-4
2.3 Turning on the Device E-4
2.4 Setting the MOBY E/F/I Operating Mode E-5
2.5 User Interface E-5
3 Using the STG E-6
3.1 Keyboard E-6
3.2 Antenna on the Read Head and Antenna Field E-6
3.3 Charging Function E-8
4 The "MOBY STG" Program E-9
4.1 Data Editor E-10
4.2 MDS Functions E-12
4.2.1 General Information on Read and Write-Accessing an MDS . E-12
4.2.2 Reading the MDS E-13
4.2.3 Writing the MDS E-13
4.2.4 Erasing/Initializing the MDS E-13
4.2.5 Reading the ID Number E-14
4.2.6 Reading Raw Data E-14
4.3 File Functions E-15
4.3.1 Loading a File E-15
4.3.2 Saving E-15
4.3.3 Exiting E-15
4.4 The "EDITOR" Functions E-16
4.4.1 Jump to Address E-16
4.4.2 Display E-16
4.4.3 Clear Display E-16
4.5 The "EXTRAS" Functions E-17
4.5.1 Communication E-17
4.5.2 Password E-17

4.5.3 Antenna ... E-18
4.5.4 Address Setup ... E-18
4.5.5 MOBY I Setup ... E-19
4.5.6 MOBY E Setup ... E-20

4.6 The "?" Functions ... E-20
4.6.1 Language ... E-20
4.6.2 About ... E-20
4.6.3 Version ... E-20

5 The "FILEHANDLER" Program ... E-21

5.1 General Information on the Filehandler ... E-21

5.2 The Filehandler Commands ... E-22

5.3 View of the Editor and Directory ... E-24
5.3.1 The Data Editor of the Filehandler ... E-24
5.3.2 View of the Directory ... E-25

5.4 The File Functions ... E-26
5.4.1 Read File from MDS (Read File from Tag) ... E-26
5.4.2 Read File from STG RAM ... E-27
5.4.3 Write File to MDS (Write File to Tag) ... E-27
5.4.4 Write File to STG RAM ... E-28
5.4.5 Read Directory from MDS (Read Dir from Tag) ... E-28
5.4.6 Read Directory from STG RAM (Read Dir from STG RAM) ... E-28

5.5 The Commands Menu ... E-28
5.5.1 New File (Create File) ... E-28
5.5.2 Delete File ... E-29
5.5.3 Format MDS (Tag Format) ... E-29
5.5.4 Attribute File (File Attribute) ... E-29
5.5.5 MDS Status (Tag Status) ... E-30
5.5.6 MDS Protection (Cover Tag) ... E-31

5.6 The Editor Functions ... E-31
5.6.1 Display Directory ... E-31
5.6.2 Display Editor ... E-31
5.6.3 Change File Size (File Size) ... E-32
5.6.4 Delete Display (Clear Display) ... E-32
5.6.5 Jump to Address ... E-32
5.6.6 Display Setup ... E-32

5.7 The "Extras" Functions ... E-33
5.7.1 Parameter ... E-33
5.7.2 Password for Filehandler (Password for FH) ... E-34
5.7.3 Communication ... E-34

5.8 The "?" Functions ... E-34

6 Expanded Functions ... E-35

6.1 Storing the MDS Data on the Hand-Held Terminal ... E-35

6.2 Copying MOBY Data from and to the Hand-Held Terminal ... E-35
6.2.1 What Is Needed in Addition? ... E-35
6.2.2 Using the PSION File Manager ... E-36
6.2.3 Organization of the READ.HEX File ... E-38

6.3 Functions with the PSION Operating System ... E-38

6.4 Parallel Execution of Several Applications ... E-39

6.5 Automatic Power Saver Function ... E-40

6.6 Connecting SIM Devices (MOBY E/I/V) ... E-40

6.7 System RESET ... E-41

7 The "MOBY" Program with the PSION Numeric Model ... E-42

8 Error Messages ... E-43

8.1 Error Messages with the "MOBY STG" Program ... E-43

8.2 Error Messages with the "FILEHANDLER" Program ... E-46

9 Technical Data ... E-49

A Appendix ... E-51

A.1 Ordering Components for Expanded Functions ... E-51

A.2 Developing User Applications ... E-52

A.3 ASCII Table ... E-56

1 General

The STG (service and test device) is a powerful addition to the MOBY E, MOBY F or MOBY I identification systems. It is a mobile hand-held terminal based on the PSION Workabout mx and is designed for applications in the areas of logistics, distribution and service. In addition, it is an indispensable aid when commissioning and testing.

1.1 Application Areas

The MOBY hand-held terminal can be used with MOBY E, MOBY F and MOBY I. The included service and test program makes it easy to read and write all data memories of MOBY E, MOBY F or MOBY I.

In addition, it is very simple for customers to program their own applications on the hand-held terminal. A C library is available from Siemens for programming the hand-held terminal read heads. Implementation of applications in the areas of warehousing, logistics and commissioning is easy.
Very sturdy in design and protected against splashed water, the hand-held terminal can also be used in rugged environments. Its display is easy to read, and in dark areas, display illumination can be turned on.

1.2 Product Description

The MOBY hand-held terminal consists of a basic device and a read head from MOBY E, MOBY F or MOBY I. The basic device is a PSION Workabout mx. This device is the worldwide standard for hand-held terminals. In addition, the terminal includes a memory card with the MOBY service and test program including a user's manual. The memory card is inserted in the basic device. The service and test program starts automatically when the hand-held terminal is turned on. All data memories of MOBY E, MOBY F or MOBY I can be processed with the hand-held terminal.

The following functions can be executed.

- Read data from the MDS
- Write data to the MDS
- Delete the entire data memory (write with a filler value)
- Read and display the ID number of the MDS (MOBY E/F)
- Represent and edit the data in hexadecimal and ASCII format
- Enable/disable password protection for all write-access functions
- Menu prompting in various languages (currently German and English)
- Store read MOBY data in files. Approximately 1.8 MB are available for this on the hand-held terminal.

STG Hand-Held Terminal
(5)J31069-D0126-U001-A2-7418

Additional functions with the MOBY I filehandler

- Format the MDS
- Create files on the MDS
- Write files to the MDS
- Read files from the MDS
- Read and display the directory
- Delete files from the MDS

The read/write head is screwed to the PSION basic device. The head is equipped with a serial TTL interface for communication with the basic device. The read head is powered by the basic device. The read/write head and the STG program can also be ordered separately so that customers can continue to use an already existing PSION Workabout or order a Workabout with a different interface and keyboard configuration directly from PSION.

The charging device (including 230 V plug-in power pack) for recharging the batteries must be ordered separately. The charging device is designed for mounting on walls or vehicles. When mounted on a vehicle, a special PSION cable is required for the charging function. See appendix A1.

For applications, a C library is available to the user with the functions of the MOBY read head. Users can develop their own programs (cf. chapter 5.7) with the optional C development environment.

1.3 FCC Information for the USA

- PSION basic device - See PSION user's manual.
- MOBY E read head

Made in Germany
SIEMENS MOBY STG E
FCC ID: KR5MIS

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES: OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Note

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment:
Such modifications could void the user's authority to operate the equipment.

2 Commissioning the STG

2.1 Included Components

The STG consists of several components which are listed individually on the delivery slip.

Ordered Components	Order Number	Pack List	Pack Number
MOBY E hand-held terminal STG	6GT2 303-0AA00	PSION Workabout mx	A5E00016735
		MOBY E read head	6GT2 303-1AA00
		Memory card incl. STG software and user's manual	6GT2 303-1CA00
		NiCd battery	A5E000 20084
MOBY F hand-held terminal STG	6GT2 403-0BA00	PSION Workabout mx	A5E00016735
		MOBY E read head	6GT2 403-1BA00
		Memory card incl. STG software and user's manual	6GT2 303-1CA00
		NiCd battery	A5E000 20084
MOBY I hand-held terminal STG	6GT2 003-0CA00	PSION Workabout mx	A5E00016735
		MOBY I read head	6GT2 003-1CA00
		Memory card incl. STG software and user's manual	6GT2 303-1CA00
		NiCd battery	A5E000 20084

2.2 Assembly

Perform the following steps in the order shown below.

- Install button cell. Button cell is located in a recess in the packaging of the PSION Workabout.
- Insert batteries. The battery catch must point to the left.
- Insert the flash program memory with the STG application in the upper slot (A).
- Install read head, and screw down.

Assembly is complete.

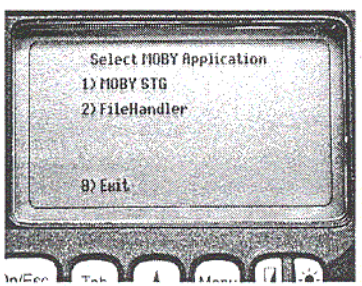
2.3 Turning on the Device

Note

Before you turn on the device, insert the hand-held terminal in the charging device and allow it to charge for at least 14 hours.

After charging, the hand-held terminal is ready for use.

After the terminal is turned on, initial startup takes several seconds. The MOBY application then starts automatically, and a selection menu appears with the MOBY applications.



1) Normal MOBY service and test program for MOBY E/F/I. The MDS data are accessed by physical addresses. See chapter 4.
2) MOBY filehandler for MOBY I The MDS data are accessed by file names. See chapter 5.
9) The operating system of the hand-held terminal is accessed with "Exit."

The device goes off automatically after no keys have been pressed for 5 minutes. When turned on again, the hand-held terminal continues with the same screen it was displaying before it was turned off manually or automatically. See chapter 6.5.

2.4 Setting the MOBY E/F/I Operating Mode

After the "MOBY STG" application has been selected, the hand-held terminal is set for MOBY E operation. If you are using another read head (i.e., MOBY F, MOBY E/SIM, MOBY I or MOBY I/SIM) with the hand-held terminal, you will have to change the operating mode. This is done by pressing the "Menu" key with the "EXTRAS/COMMUNICATION/Protocol" function.

If you are using MOBY E, be sure to call the "EXTRAS/ANTENNA" function and turn on the correct antenna.

MOBY operating mode does not need to be set for the Filehandler program.

2.5 User Interface

Use of the STG program on the hand-held terminal is described in chapter 3.

Use of the Filehandler program for MOBY I is described in chapter 5.

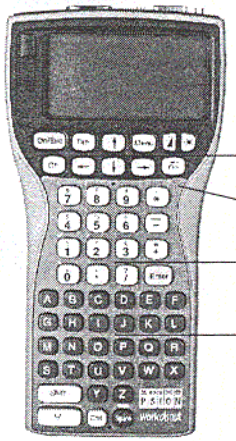
All functions of the MOBY programs can be called with the "Menu" key.

3 Using the STG

3.1 Keyboard

The keyboard of the PSION is divided into 3 parts.

- 11 control keys directly below the display
- Numerical key block with 16 keys
- ASCII keyboard (30 keys) including shift key



Control keys; Contrast, display illumination, on/off, and cursor keys

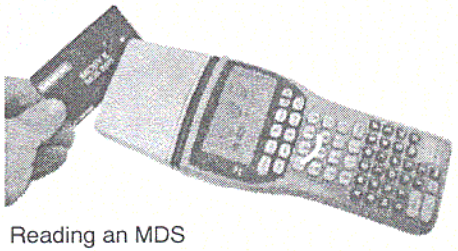
Green LED. Goes on when battery is being charged.

Numeric input block with Enter key

ASCII keyboard plus shift and special function keys (Ctrl, ⇗)

3.2 Antenna on the Read Head and Antenna Field

The antenna of the read head is located on the top of the hand-held terminal as shown in the figure below.

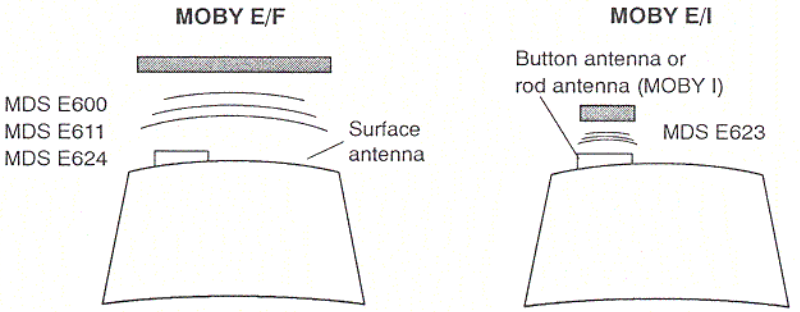


Reading an MDS

The various types of MDSs offer different ranges. The following table gives you an overview.

MOBY E		MOBY F		MOBY I	
MDS Type	mm	MDS Type	mm	MDS Type	mm
E600 (ISO card)	18	F125	80	302/402/401	6
E611	30	F415	50	114/514/413E	20
E624 (button)	8	F124	60	403	8
E623 (pill)[1]	4/3[2]			506	12
				438E/439E	12
				507 (with battery)	35
				507 (without battery)	4

1 The pill can only be read on the head portion provided for this.
2 When MDS is installed in metal



The antenna field for the STG read head

Antenna field for MOBY E

With the MOBY E read head, 2 antennas are integrated in the reader. These must be positioned on the read head based on which MDS you want to read. The EXTRAS/ANTENNE command (see chapter 4.5.3) is used to switch the antenna field. Remember that the MDS E623 can only be read on the antenna provided for this. See figure. The MDS E624 can be read on both the button antenna and the surface antenna.

3.3 Charging Function

The battery charging procedure is started as soon as the hand-held terminal is placed in the wall or vehicle holder. Charging is activated and indicated with a green LED. See chapter 3.1.
An empty battery requires at least 14 hours for a complete charge.

High-speed battery charging

The batteries supplied by Siemens can be charged at high speed so that the MOBY hand-held terminal can be operated directly in the high-speed charging device available from PSION. A full charge takes 1 hour.

Use of other batteries

Other AA batteries can also be used in the PSION Workabout. These include rechargeable NiCd batteries and alkali batteries which cannot be recharged.

IMPORTANT: Be sure to adhere to the PSION user's manual.

The backup battery

The backup battery is used to retain the application data when the main batteries are empty. The backup battery is a lithium cell which cannot be charged. Remember that, when the main batteries are empty or have been removed, a new backup battery can only maintain the data in the RAM for just a few days.

4 The "MOBY STG" Program

After you turn on the STG, the editor appears on the display. You can view the data, enter new data or call a function with the "Menu" key. Functions can also be called directly with the ⩡ key. To do this, press the ⩡ key and the appropriate alphanumeric key at the same time. The table below lists all functions together with their direct calls.

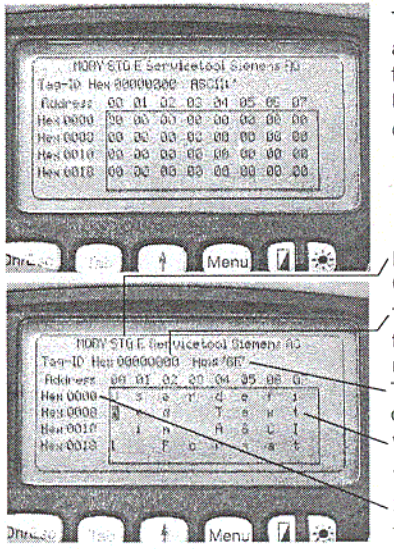
Command	Shortcut	Description
File/Load File	L or F3[1]	Load file from PSION RAM drive to working storage
File/Save	S or F4[1]	Store read MDS data on the RAM drive
File/Exit	X	Exit STG application
Tag/Read	R or F1[1]	Read data from MDS
Tag/Write	W or F2[1]	Write data to MDS
Tag/Erase/initialize	E	Write MDS with a certain value
Tag/Read TagID	T	Read ID number of MDS
Tag/Read raw data	M	Read physical memory of MDS
Editor/Jump to address	J or Tab	Jump to a certain address in editor
Editor/Display	D	Change display options
Editor/Clear	C	Clear data in editor to a certain value
Extras/Communication	I	Change communication options
Extras/Password for STG	P	Change password for STG application
Extras/Antenna	A	For MOB E: Switch antenna between "card" and "button"
Extras/Address Setup	G	Define entries for the "read/write MDS" commands
Extras/MOBY I Setup	H	Set memory size and MOBY I operating mode
Extras/MOBY E Setup	Y	Switch MDS access from "MOBY key" (A) to the B key For MOBY E SIM: Switch between cyclic operation and continuous operation

Command	Shortcut	Description
?/Language	N	Set menu language
?/About...	B	Manufacturer's data
?/Version	V	Version of operating system and STG application

1 These keys are only available on a hand-held terminal with a numeric keyboard.

4.1 Data Editor

The MDS data can be edited in hexadecimal or ASCII. This can be set in the EDITOR/DISPLAY menu.



The editor always shows the total size of an MDS memory. Use the cursor functions to access the individual addresses. Use the "Tab" key to jump to any address. See chapter 4.4.1.

Indication of the currently set read head. Cf. chapter 4.5.1

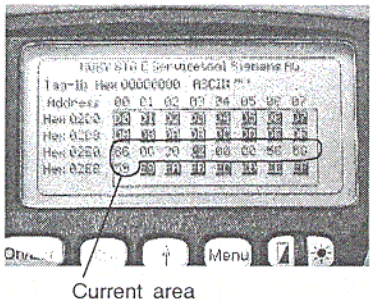
The tag ID of the MDS is only displayed on the MOBY E/F. It is valid after the "MDS/ read-write-readTagID" function is executed.

The position at which the cursor is located can also be shown in hexadecimal format.

Window with the MDS data. Standard setting is 32 bytes.

MDS addresses are shown in hexadecimal format.

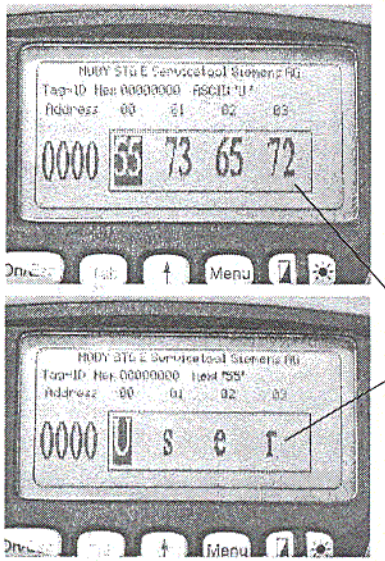
The "current area"



The editor uses normal representation for the "current area." All other data areas of the MDS are shown inverted. The current area shows the data block which was read last. During read/write-accesses, the current area is entered as the value for the write command. This value can be adjusted in the TAG/WRITE or TAG/READ menu.

The current area is changed automatically when you edit data and overwrite.

The size of the memory area shown on the display can be switched with the EDITOR/DISPLAY function. See chapter 4.4.2.



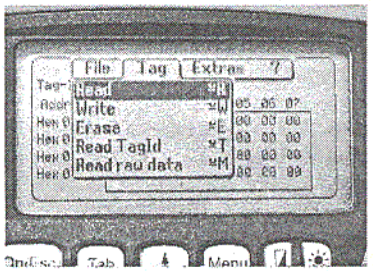
In the normal representation, 32 bytes are displayed in lower case letters. This gives you an overview of the MDS data.

In zoom representation, only 4 consecutive bytes are shown. Representation is in upper case letters. This display is easy to read.

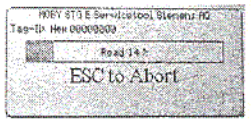
Zoom representation (hexadezimal)

Zoom representation (ASCII)

4.2 MDS Functions



The MDS functions handle communication with the MDS.
The MDS function is not interrupted if you briefly move the MDS out of the read field. The MDS function is terminated if MDS processing does not take place for more than 30 seconds. See chapter 4.4.

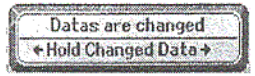


After a command is started, a window with a bar appears on the display. This bar shows how much of the command has already been processed.

4.2.1 General Information on Read and Write-Accessing an MDS

The MOBY E, MOBY F or MOBY I MDSs use block-oriented data accessing. A read or write-access to an MDS is only possible at the beginning of a block. One block contains 16 bytes (or 10 hex). Thus, the start addresses for MDS processing to be entered on the STG are: 00, 10, 20, 30 hex and so on. With the MOBY E and MOBY F, the TagID on the display is still automatically updated before the read/write access.

However, you can also specify any start address. This will be accepted by the STG and corrected to the next lower block beginning. The corrected address is indicated for the operator in a window and must be acknowledged.



An additional window appears if you change data in the editor and then attempt to read an MDS. The window tells you that the data which you have just modified may be overwritten again with the "read MDS" command. You can retain or reject the modified data in the editor, or you can terminate the command completely.

Note

ECC mode can only be set on the MOBY I hand-held terminal.

ECC mode cannot be used with MOBY E.

4.2.2 Reading the MDS

A data block with a start and end address, which can be defined as desired, can be read from the MDS. If the same value is entered for the start and end address, one byte will be read.

Note

If mode "Complete MDS" was selected in the read/write field of the menu "Extras/Address Setup/.....", the "MDS/read" funktion is started immediately without asking any questions. The complete MDS is always processed.

4.2.3 Writing the MDS

A data block can be written to the MDS. The data block which is valid in the editor is indicated as the default for each write access. The default length or end address can still be changed to another value during the write-access.

4.2.4 Erasing/Initializing the MDS

The "erase/initialize MDS" function is used to write the entire MDS with a certain value in a very short time. The erasure value can be entered in a subsequent menu. After the deletion function has been performed, the memory in the editor is also erased with the value which was entered. With the MOBY I, the correct size of the MDS memory must be set (EXTRAS/MOBY I Setup) before this function is performed.

4.2.5 Reading the ID Number

Only MOBY E, MOBY F: The function reads and indicates the serial number of the MDS. The ID number is set at the factory and cannot be changed.
The "TagID" is displayed in hexadecimal format by the editor in the second line.
The TagID is automatically read with the "MDS read/write/erase" functions.

4.2.6 Reading Raw Data

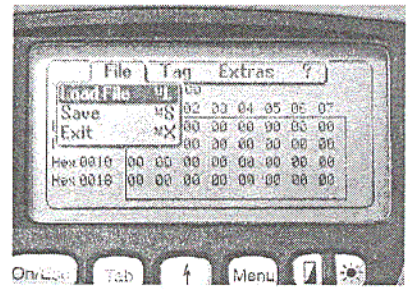
Only MOBY E, MOBY F: This function is used to physically read the entire memory of the MDS. This includes tag ID, key information (if public), manufacturer's information and MDS access rights. A knowledge of the physical layout of the MDS memory is required to interpret the data. See description of MFWAPI or CCTWAPI.

The "read raw data" function can be used to detect errors made when the MDS was configured.

Note

for MOBY F
MDS addresses 8 to 3F hex (i.e., pages 2 to 15) cannot be read.
They are always shown by the editor as 00.

4.3 File Functions



4.3.1 Loading a File

A file can be loaded to the STG editor which was

- saved before with the "file/save" command or
- transferred from the PC to the "RAMDRIVE (M:)" drive of the PSION. See chapter 6.2.

4.3.2 Saving

Data currently being displayed by the editor can be saved in a file on the PSION. The file name may consist of 1 to 8 letters or numbers. During the storage procedure, the extension ".HEX" is automatically added to the file name. See also chapter 6.2.

A memory area of approximately 1.8 Mbytes is available on the hand-held terminal for storage of MDS data (i.e., with MOBY E, up to 2000 MDSs can be read and stored).

4.3.3 Exiting

The "exit" function can be used to conclude the STG program of MOBY. This gives you access to the operating system levels of the PSION hand-held terminal. See chapter 6.3.