

# SIEMENS

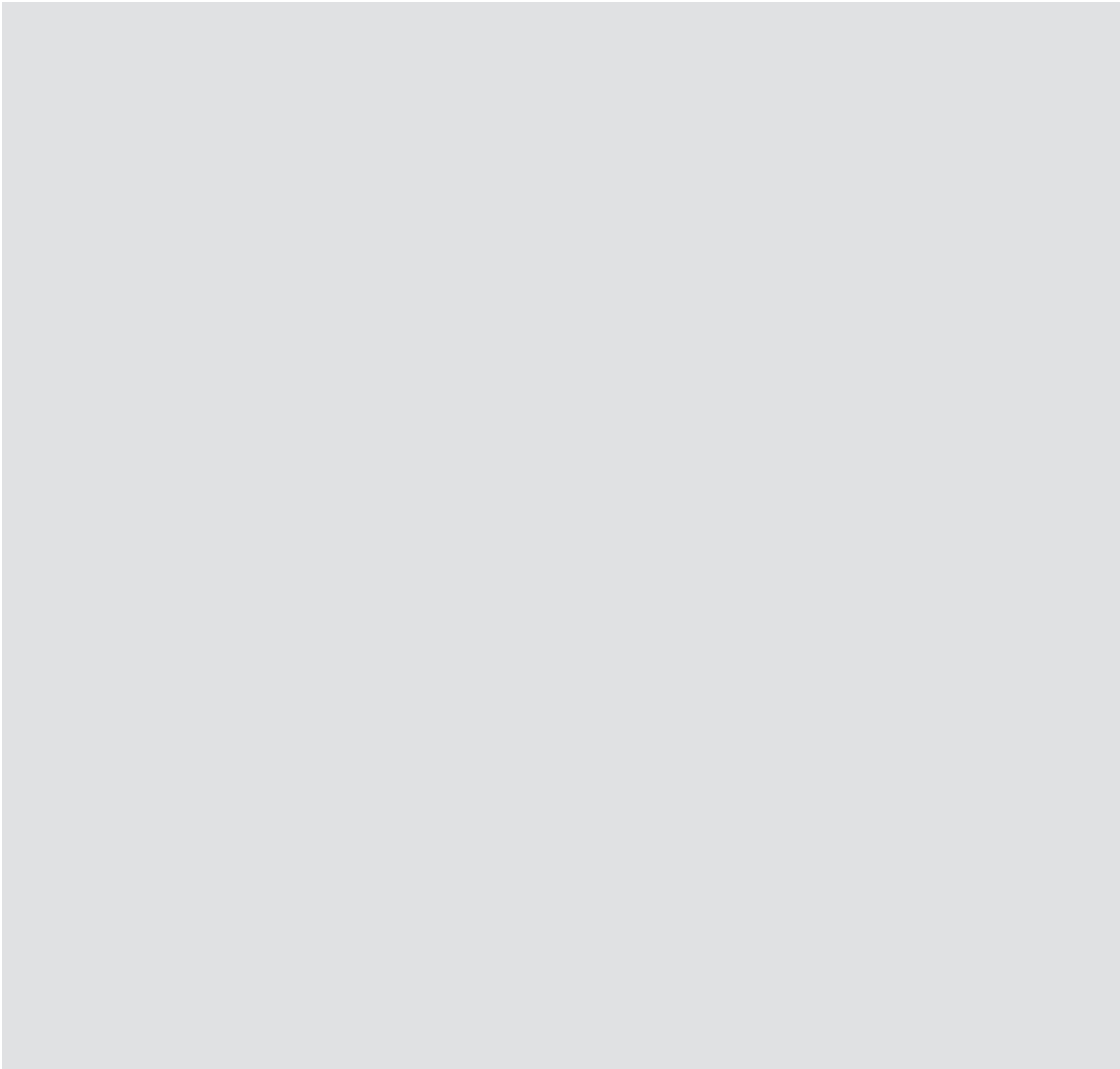
## Identsystem MOBY<sup>®</sup> – I

STG 4 / 4F

Service and Test Unit

Operator's Guides

Release 02.93



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## 1. General

The STG Service and Test Unit is a hand–held portable terminal. It is an invaluable tool for testing, commissioning and troubleshooting purposes.

The language the menus are displayed in can be switched between:

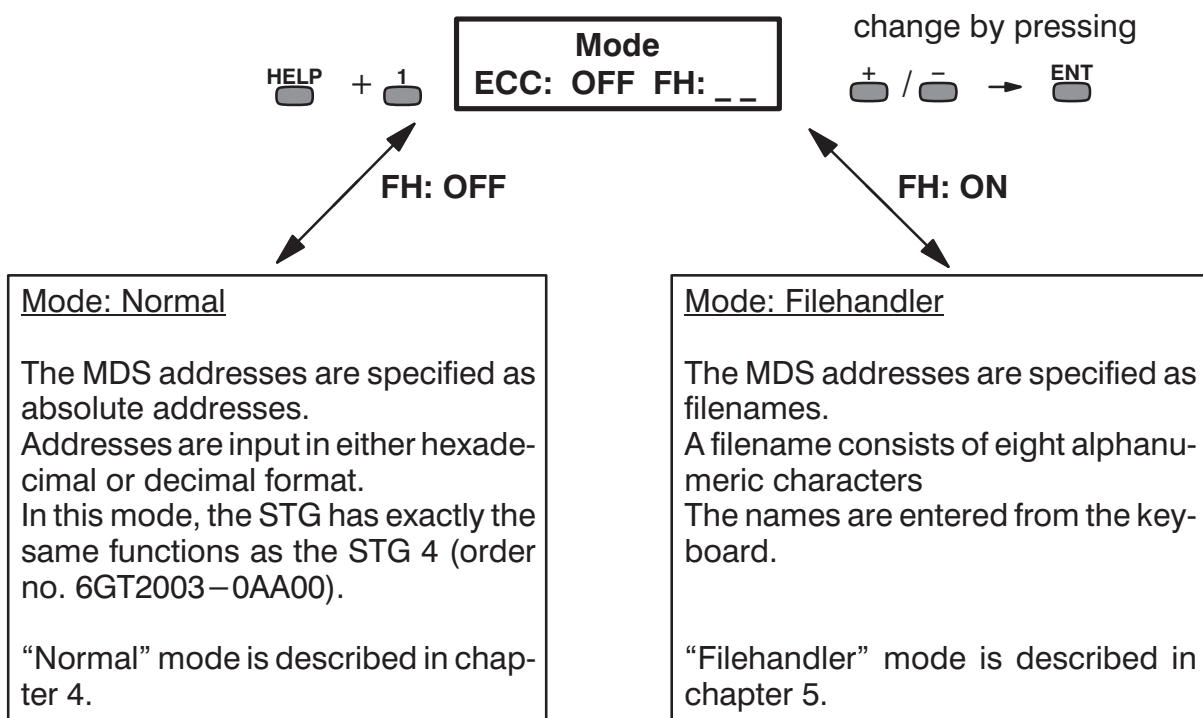
**English, French, German, Italian**

**Note:**

Charge the batteries of the STG before commissioning for the first time.

### 1.1 STG 4F modes of operation

The STG 4F has two very different modes of operation. The choice of operating mode depends on the application. Once the user has decided which mode to use, it will generally speaking not be necessary to change it again. The mode of operation can, however, be changed by pressing the function key **HELP** + **1**. The following diagram shows both modes:



## 1.2 Using the STG for testing

### 1.2.1 Direct dialog with the MDS via internal inductive interface

The broad head of the STG contains a battery driven SLG read/write unit. The transmission window of the SLG is indicated by two circles. An MDS mobile data carrier in the vicinity of the transmission window can be processed. The size of the window is not fixed. It depends on the type of MDS and the state of the batteries in the STG. The maximum distance between the MDS and the STG can be anything from a few millimeters up to several centimeters.

### 1.2.2 Online testing of the interface, SLG and MDS

- The STG recognizes online mode automatically and selects the corresponding menu for the user.
- Data is transferred to and from the MDS in much the same way as in “direct dialog” mode.
- The relevant commands are generated by the STG and transferred serially to the ASM.
- The ASM, with the help of the STG, handles the exchange of data with the MDS.
- In online mode, power for the STG is provided via the ASM interface. The batteries are recharged when the STG is switched off.
- The STG 4F can be driven by the following interfaces:
  - ASM 400
  - ASM 401
  - ASM 410
  - ASM 420/RS422
  - SIM 42

### 1.2.3 Direct operation of the STG on a SLG read/write unit

- The STG recognizes online mode automatically and selects the corresponding menu for the user.
- Data is transferred to and from the MDS in much the same way as in “direct dialog” mode.
- The relevant commands are generated by the STG and transferred serially to the SLG.
- Data is transferred to and from the MDS with the help of the SLG.
- An external 24 volt power supply is required for the SLG.

## 2. The STG keyboard

The MDS can be written to and read inductively

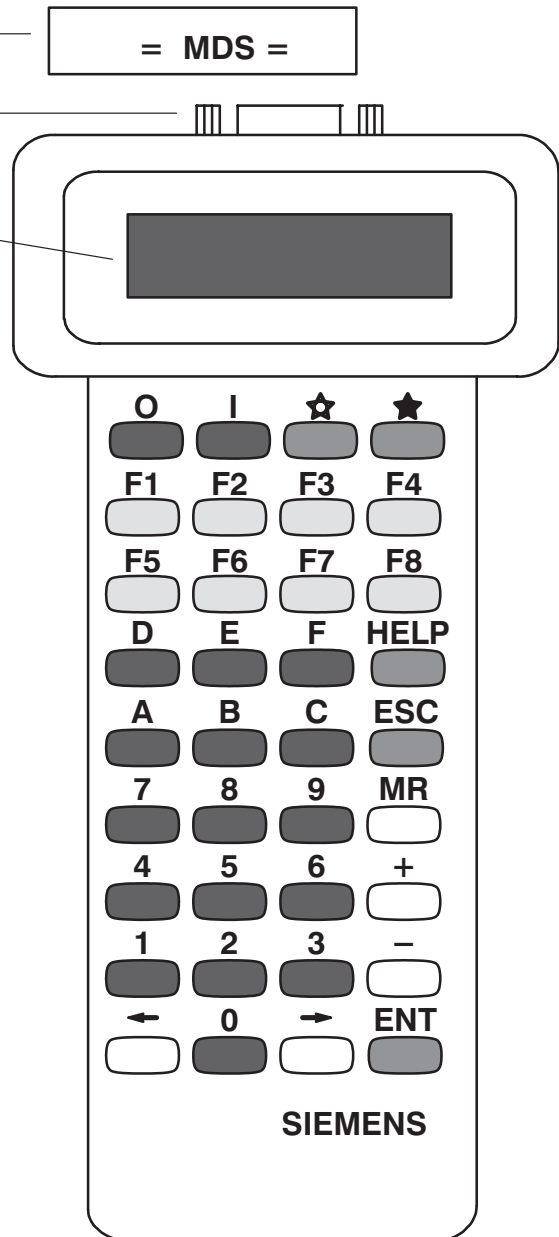
= MDS =

Serial interface for SLG or ASM

2 x 16 digit LCD display




### Key Description:


- O:** OFF      **I:** ON
- ☆:** lighten contrast
- ★:** darken contrast
- F1...F8:** preset function keys
- HELP:** mode of operation / help function
- ESC:** delete key : this key ends the current activity and enables internal memory to be reset
- MR:** recall internal memory; display file data
- ENT:** 'Enter' key for terminating input
- +:** page forward through memory; input of alphanumeric characters (filename)
- :** page backwards through memory; input of alphanumeric characters (filename)
- ← :** move cursor one character to the left
- :** move cursor one character to the right
- O...F:** keys for entering data; input of filenames



### 3. Switching on the STG and changing mode of operation



#### – Switching on in initial operating mode

The required language must be selected (e.g.  for English) after pressing the  key. A 4 digit password may also be entered. The password is confirmed by pressing .

The password prevents unauthorised personnel from sending write commands. Write protection can also be ignored providing the  key is pressed straight away.

**Warning:**

If the password is forgotten it can only be regenerated in the factory.

The STG is now in “normal” mode. Changeover to “filehandler” mode is performed by pressing the function key   (see chap. 1.1).

#### – Subsequent use

Once the unit has been parameterised, it reports that it is ready whenever it is subsequently switched on. **SIEMENS STG** and the current version number appear in the display. Active “filehandler” mode is indicated by “**FH**” in the second line of the display.

## 4. STG 4 mode

This chapter describes exactly the same functions that will already be familiar from STG 4 (order no. 6GT2003–0AA01).

### 4.1 Parameterisation and Help functions

By pressing the **HELP** key several times, all functions of the unit can be called up. The following appears in the display when the **HELP** key is first pressed :

**Select OP–Mode  
Keys F1–F8, 0–F**

The required function can now be selected with **F1** to **F8**, or **HELP 0** to **HELP F**. If you don't know the exact key, press the **HELP** key several times.

The following appear in the display in the sequence...

**BYTE–MODE  
F1=Read F2= Write**

F1 = Read any Byte on the MDS  
F2 = Write any Byte on the MDS

**BLOCK–MODE  
F3=Read F4=Write**

F3 = Read a data block of length 1 to 240 Bytes from the MDS. The data is displayed in STG memory at the appropriate location.  
F4 = Write a data block of length 1 to 240 Bytes on the MDS. The data to be written must previously be in the STG's memory.

**INIT–MODE  
F5=Type**

F5 = Initialization of the MDS. The MDS will be completely erased and is then ready for operation.

F6 = Reserve

**MDS complete  
F7=Read F8=Write**

F7 = Read the full MDS or read a 16 KByte segment. The data will be in the STG's memory.

F8 = Write to fill the MDS or read a 16 KByte segment. The data must already be in the STG's memory.

**STG PARAM**  
0=Type 1=MODE

- 0 = Select MDS type  
Scroll through the various MDS types by pressing / The required MDS type is confirmed by pressing
- 1 = Select STG mode:  
Switch ECC mode on or off (by pressing / key)

**STG PARAM**  
9=HEX/DEC

- 9 = Changes how addresses and data are displayed: hexadecimal, decimal, ASCII and binary (if ASCII or binary is selected, only data will be displayed in these forms; addresses are displayed in hexadecimal).

**STG TEST**  
A=Field B=HWTEST

- A = Field indicator (detection of interference)
- B = Activate STG hardware test. This test deletes all STG pre-sets.

**Language Mode**  
D=Ger E=GB F=Fra

- D = German language
- E = English language
- F = French language

**Language Mode**  
C=Ita

- C = Italian language

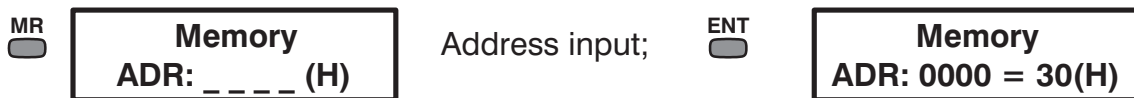
#### 4.2 Editing memory

To facilitate the blockwise transfer of data between the STG and the MDS ( , , , ), part of STG memory is used as a temporary buffer.

When reading an MDS, the data is stored in the corresponding STG memory location. Similarly, the data must be entered in STG memory before it can be written to the MDS.

Memory contents can be displayed in hexadecimal, decimal, ASCII or binary format. The display format is changed by pressing .

Display and editing of STG memory (the address in STG memory corresponds to the address in the MDS) :



The value that has been read e.g. “30H” can now be modified. The revised value is entered by pressing the key. The next address (0001) is then displayed.

Paging forwards or backwards through memory is performed using the and keys. Holding a key down activates the automatic repeat function.



### 4.3 Reading the MDS

MDS data can be read using the **F1**, **F3** or **F7** keys.

#### Reading a single data Byte:

The function key **F1** enables the contents of a single MDS address to be read. The address is input in the specified display format and the function activated by pressing **ENT**.

#### Example:

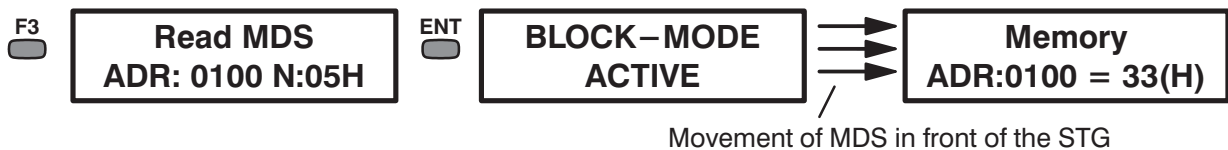


The outcome of the read operation is displayed. The data is not saved in STG memory.

#### Reading a data block (up to 240 Bytes)

The function key **F3** enables several Bytes to be read. The start address and the number of Bytes to be read must be entered. The function is activated by pressing **ENT**.

#### Example:

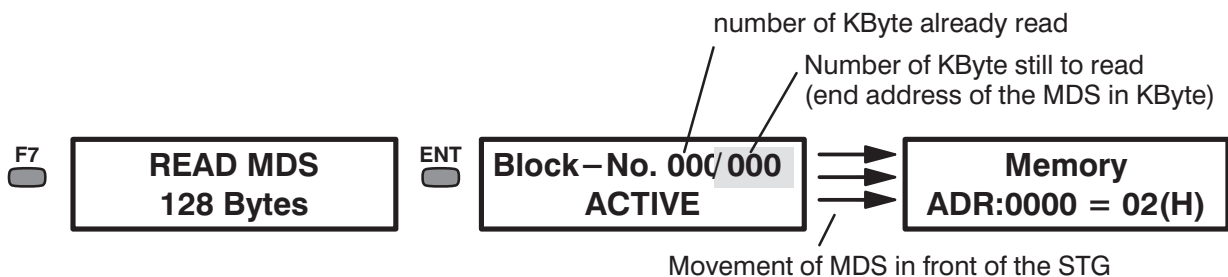


The contents of the MDS address 0100(H) will be displayed. By pressing **+** the next memory address is displayed.

#### Reading a complete MDS:

The function key **F7** enables the complete memory to be read. The size of the memory must be specified in advance using the **HELP 0** function. The function is activated by pressing **ENT**.

#### Example: read a 128 Byte MDS

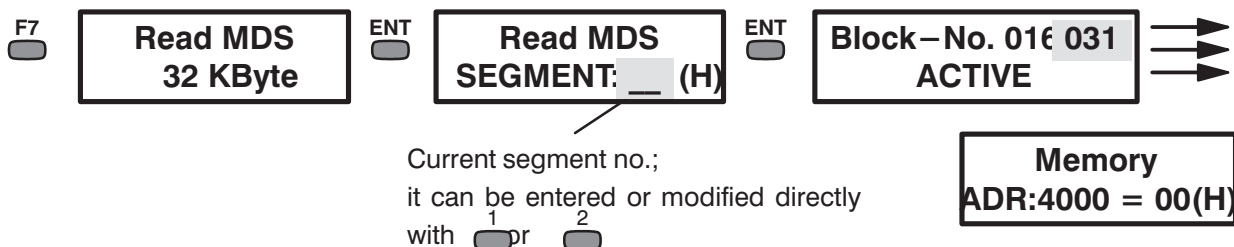


As soon as all the data has been read, the display memory, starting at the first address read, is shown in the display. By pressing **+** or **MR**, the contents of each successive memory location can be displayed.

**Special points for larger MDS memories:**

The STG has a 16 KByte RAM for buffering the MDS data. MDS types with more than 16 KByte are segmented by the STG. The segments must be read one after the other and are 16 KByte in size.

**Example:** read 32 KByte MDS



The MDS will be read from 16 KByte to 32 KByte

After the read operation, the first address will be shown in the 2nd display segment.

Breakdown of segments:

Segment	Start address		End address	
	Hex.	Dec.	Hex.	Dec.
1	0000	0	3FFF	16 383
2	4000	16 384	7FFC	32 767

The last 3 memory locations in the MDS are reserved for internal system functions

Segments can also be selected directly when editing STG memory (see section 4.2). Entering address 4000H switches the STG memory to the second segment. Note, however, that the STG memory is erased with every segment change. A segment change is displayed.

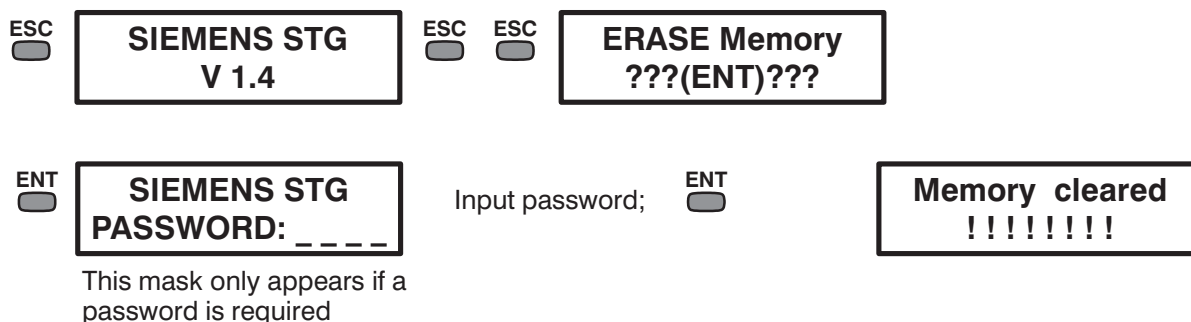
The segment change must be confirmed by pressing **ENT**.

**4.4 Writing the MDS**

Data can be written to the MDS using the **F2**, **F4** or **F8** keys.

**Erasing STG memory:**

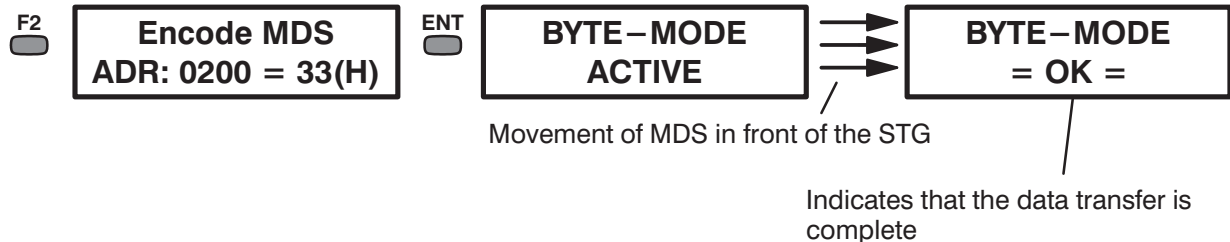
With the **F4** and **F8** functions, the data must first be entered into the STG memory. If the contents of the STG memory are not known, then the memory should first be erased.



### Writing a single data Byte:

The function key **F2** enables the write address and data to be input. The function is activated by pressing **ENT**.

#### Example:



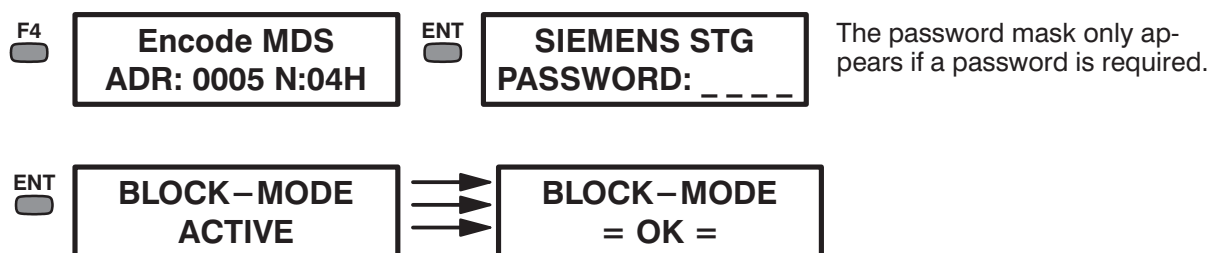
### Writing of data blocks (up to 240 Bytes);

Before using **F4** to write a data block, the relevant data block must first be in STG memory. Data should be entered as described in section 4.2. The function is activated by pressing **ENT**.

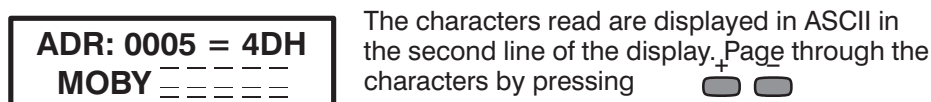
**Example:** The decimal values 77, 79, 66, 89 are to be written to the MDS, starting at address 5.

#### Programming the STG

- set the display format to decimal using the **HELP 9** function
- activate the **MR** memory function; enter the above data, confirming each input by pressing **ENT**
- program the MDS:



- Check the MDS using the **F3** function and convert the STG memory (using **HELP 9**) into ASCII format:



### Writing the complete data memory:

The programming of a complete data MDS is required when the MDS contents are to be copied or corrected. The following operations are necessary:

- Specify the memory size( **HELP 0** )
- Read the MDS using **F7**
- If necessary, modify the data with **MR**
- Programme the MDS with function **F8**

**Special points for larger MDS memories:**

The principles regarding memory segmentation when reading an MDS (see section 4.3) also apply to writing to an MDS.

**N.B.:** It is not possible to change segments using **F8** when writing to an MDS.

**4.5 Initialization of the MDS**

An MDS should be initialized

- before writing to it for the first time
- when it needs to be erased quickly and completely
- when it is to be used in ECC mode

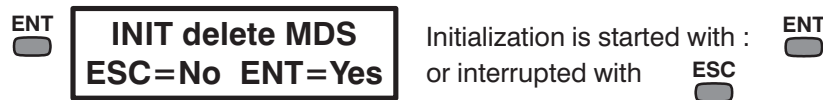
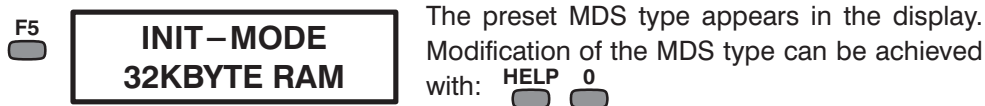
All memory segments are overwritten during initialization.

Initialization duration;

62 Byte RAM	= 0.1 (0.2)* seconds	* duration
128 Byte EEPROM	= 6 (12)* seconds	in ECC mode
32KByte RAM	= 2 (53)* seconds	

It is important that the MDS should not be moved away from the antenna while it is being initialized period otherwise the process will be interrupted and restart again automatically.

**Example:** Initialization of a 32KB RAM MDS



**4.6 Online test**

The STG has an RS422 serial interface. This interface can

- a) be connected to an ASM 400 module
- b) be connected directly to an SLG read/write unit

The STG automatically recognizes if,

- an ASM is connected
- an SLG read/write unit is attached with a power supply
- the serial interface is inactive and the commands are being processed via the internal inductive interface

The operating mode is shown in the display for the user. As soon as the serial interface is activated, a “=” character is displayed instead of the “\*” character. If a serial link was already established when the STG was switched on, the following message is displayed:

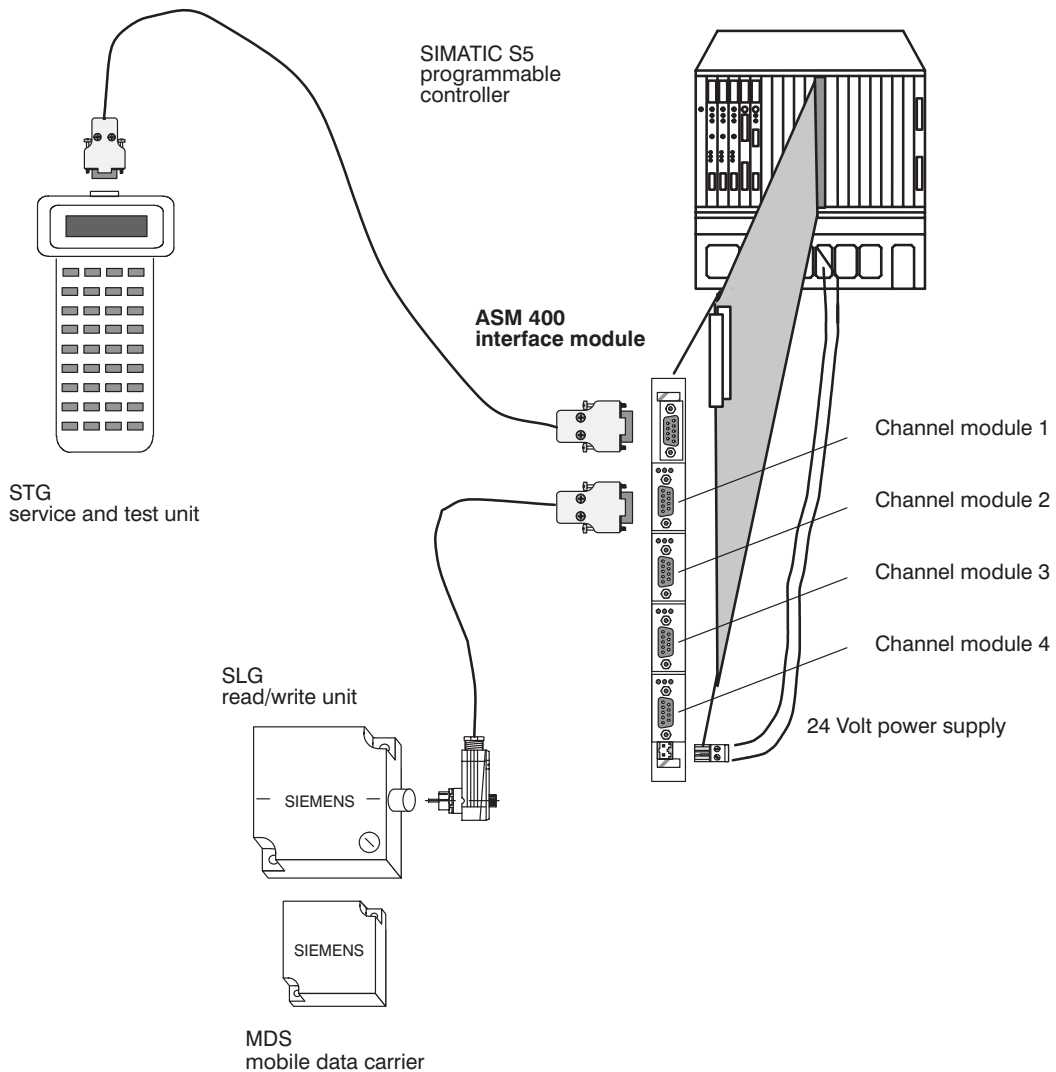


From now on all commands will be issued via the serial interface. The STG’s integrated inductive interface remains switched off.

The same commands are available on a serial interface as on the integrated inductive interface. Pressing the **ESC** key results in a Reset command on the serial interface; the current command will be aborted.

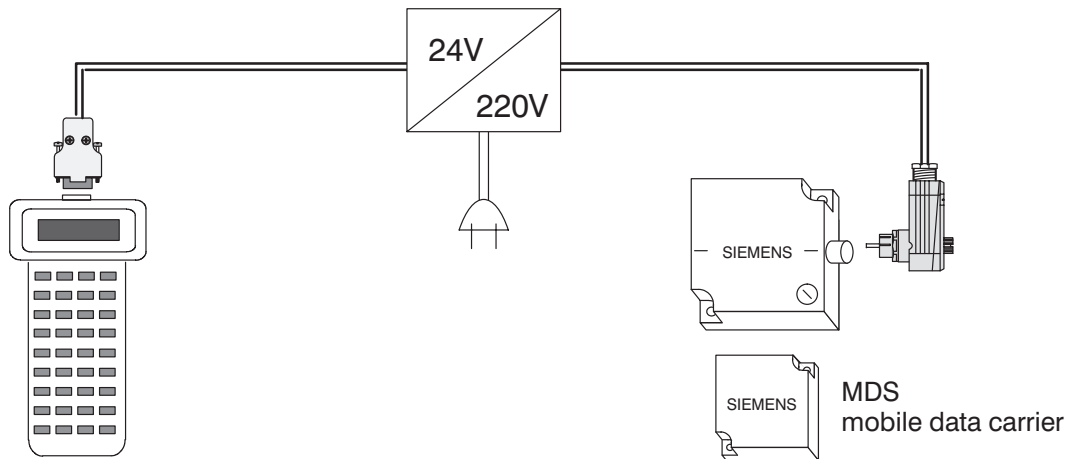
**Connections:**

a) to ASM 400:



**N.B.:**  
Channel module 1 must always be used otherwise no STG operation will be possible.

b) to an SLG:

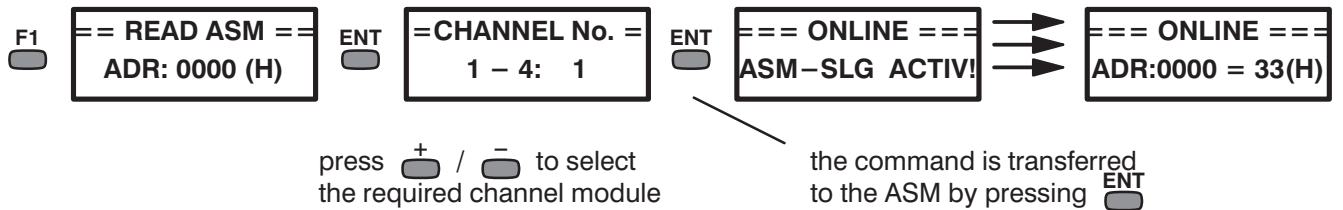


The hand-held terminal is supplied with power via the cable connection. Discharging of the STG batteries does not occur.

If the STG is switched off the batteries will be recharged via the STG connector.

**Example:** Reading address 0 of the MDS

a) Operations at the ASM 400



b) Operations at the SLG



If the serial connection is down, an error message appears in the display after a few moments.

**4.7 Error Messages**

**MDS: Batt. low!**  
= OK =

MDS battery low. The lithium battery in the MDS is checked each time a data transfer takes place. This message means that the read/write command was carried out correctly, but the battery voltage has reached a critical level.

**MDS: ECC-Corr.**  
= OK =

The STG is in ECC mode and has performed a successful data correction operation during the last command (read or write). The read/write data is OK.

<p><b>Read MDS</b> ??????????</p>	<p>Invalid entry in the input field. The message is displayed when <b>ENT</b> is pressed. Enter the and command again with the correct address/data.</p>
<p>?????????? <b>Battery low</b></p>	<p>Empty batteries in the STG when ONLINE. The STG can still be operated for a short period. Read/write operations using the inductive interface are no longer possible.</p>
<p>!!!!!!!!!!!! <b>Battery low</b></p>	<p>Empty batteries in the STG. The batteries are completely discharged. The STG should be turned off immediately and recharged.</p>
<p>All other error messages are shown in the first line of the display in the format “ERROR = XX(H)”. The “XX” error code is identical to the MOBY–I error codes in other MOBY–I units and interfaces (see FB 250 description). The second line of the display usually contains a brief description of the error.</p>	
<p><b>Error = 03(H)</b> <b>SLG connection?</b></p>	<ul style="list-style-type: none"> <li>– connection between ASM and SLG faulty</li> <li>– SLG defective</li> <li>– inductive interface defective (internal to SLG)</li> <li>– 24V to the ASM missing or too low</li> </ul>
<p><b>Error = 04*(H)</b> <b>Memory loss</b> * or 0C</p>	<ul style="list-style-type: none"> <li>– MDS battery is completely discharged (04) –&gt; replace MDS</li> <li>– the MDS has not been initialised (04) –&gt; the MDS must be initialised with <b>55</b></li> <li>– MDS memory is defective (0C)</li> <li>– MDS EEPROM written too often.</li> </ul>
<p><b>ERROR = 05(H)</b> <b>MDS parameter</b></p>	<ul style="list-style-type: none"> <li>– the relevant memory is not available on the MDS</li> <li>–&gt; use <b>Help 0</b> to specify the correct MDS</li> </ul>
<p><b>ERROR = 0E(H)</b> <b>ECC error</b></p>	<p>the data in the MDS is defective or the MDS is not an ECC MDS –&gt; use <b>Help 1</b> to deactivate ECC in the STG.</p>
<p><b>ERROR= 08**(H)</b> <b>Ext. interference</b> ** or 06, 07, 09, 0B</p>	<p>interference present in the inductive field at the STG</p> <ul style="list-style-type: none"> <li>– defective MDS</li> <li>– an SLG is interfering with STG operation</li> <li>– the MDS is located at the edge of the inductive field</li> <li>– the MDS often left the field briefly during INIT.</li> </ul>
<p><b>ERROR = 18(H)</b></p>	<p>Incorrect channel number selected on ASM 410</p>

## 5. STG 4F mode

This chapter describes access to MDS memory in “filehandler” mode.

Please note:

Individual, absolute addressed MDS data Bytes can not be accessed in “filehandler” mode.

If absolute addressing is necessary, the STG must be switched to “normal” mode. We advise against writing to a “filehandler” MDS in “normal” mode, as the data structure of the MDS may be destroyed. An MDS with a corrupt data structure has to be reinitialized by pressing **F5**.

### 5.1 Assignment of function keys and Help function

By pressing the **HELP** key several times, all functions of the unit can be viewed. The following appears in the display when the **HELP** key is first pressed:

**Select OP-Mode  
Keys F1-F8, 0-F**

The required function can now be selected with **F1** to **F8**, or **HELP 0** to **HELP F**. If you don't know the exact key, press the **HELP** key several times.

All functions appear in the display in the sequence:

**MDS FILE  
F1=Read F2=Write**

F1 = Read a data file from the MDS  
F2 = Write data files. Data can be appended to a file or the complete file overwritten

**MDS FILE  
F3=Create F4=Del**

F3 = Create a new file on the MDS  
F4 = Delete a file from the MDS






**MDS  
F5=Format F6=Dir**

F5 = Format an MDS; the file structure is recreated; all data is lost  
F6 = Read and display MDS directory

**MDS  
F7=Stat. F8=Attr**

F7 = MDS status; all MDS parameters are read and displayed  
F8 = Set/reset attributes; individual files can be write or delete protected

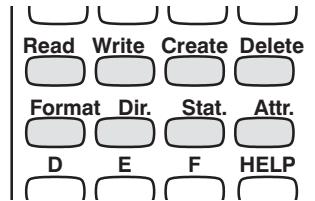


<b>STG PARAM</b> <b>0=Type 1=MODE</b>	0 = Select MDS type Scroll through the various MDS types by pressing  /  . The required MDS type is confirmed by pressing  .
<b>STG PARAM</b> <b>2=ASM.PAR. 3=SLG</b>	1 = Select STG mode: Switch ECC mode on/off or switch to “Normal” mode (by pressing  /  key)
<b>STG PARAM</b> <b>9=HEX/DEC</b>	2 = Display and modification of ASM parameters (in ONLINE mode only) 3 = Select SLG number
<b>General commands</b> <b>4=Next 5=Direct.</b>	9 = Changes how addresses and data are displayed: hexadecimal, decimal, ASCII and binary (if ASCII or binary is selected, only data will be displayed in these forms; addresses are displayed in hexadecimal).
<b>MDS TEST</b> <b>6=File structure</b>	4 = Next MDS: The Next command is used to control the MDS; it is only valid if the STG is being driven ONLINE on the ASM.
<b>STG TEST</b> <b>A=Field B=HWTEST</b>	5 = Display current directory; The directory most recently read by the MDS is displayed. The directory is retained in the STG even when the power is switched off.
<b>Language</b> <b>D=GER E=GB F=FR</b>	6 = Tests the MDS file structure. If the command terminates with OK, the filehandler can use this MDS.
<b>Language</b> <b>C=ITA</b>	A = Field indicator (detection of interference) B = STG hardware test (this test deletes all STG presets).
	D = German language E = English language F = French language
	C = Italian language

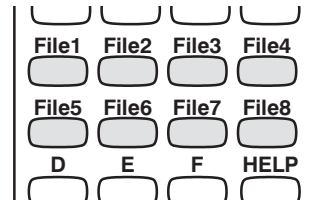
## 5.2 Handling of file operations on the STG

An 8 digit filename is required to start a file operation. To avoid having to reenter frequently used filenames, up to 8 filenames can be stored under the function keys **F1** ... **F8**. These allocations are retained even when the STG is turned off.

Initial allocation of function keys:



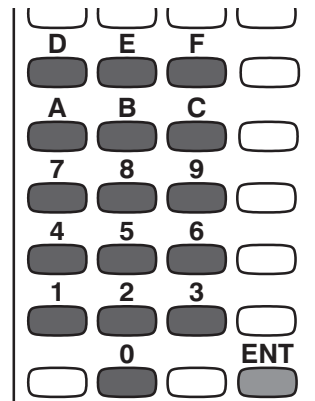
Pressing one of the function keys **F1** / **F2** / **F3** / **F4** and a second time causes a preset filename to be selected.



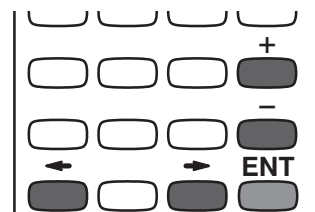
### Entering and modifying filenames:

A filename consists of 8 alphanumeric characters: 0 ... 9, A ... Z, a ... z, plus special characters. The name can be entered in three ways:

- a) A filename can be entered quickly and directly using the keys **0** to **F** in such cases, the filename will consist of the characters 0 ... 9 and A ... F only. Input is terminated by pressing **ENT**.

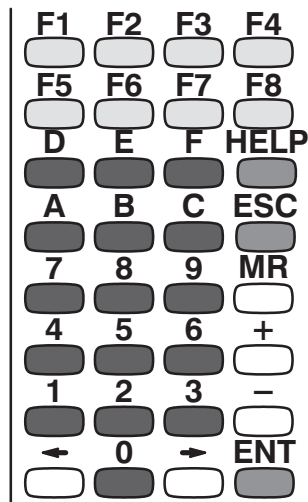


- b) Alphanumeric characters in the filename can also be set using the **+** / **-** keys. Holding a key down activates the automatic scroll function. The cursor is positioned in the display field using the cursor keys. Input is terminated by pressing **ENT**.



You can toggle between these two modes a und b as required during input.

c) Acceptance of filename from the directory to the function keys F1.. F8. A filename can be copied to a function key with the and keys by the directory functions F6 or HELP (see chap. 5.4.6).



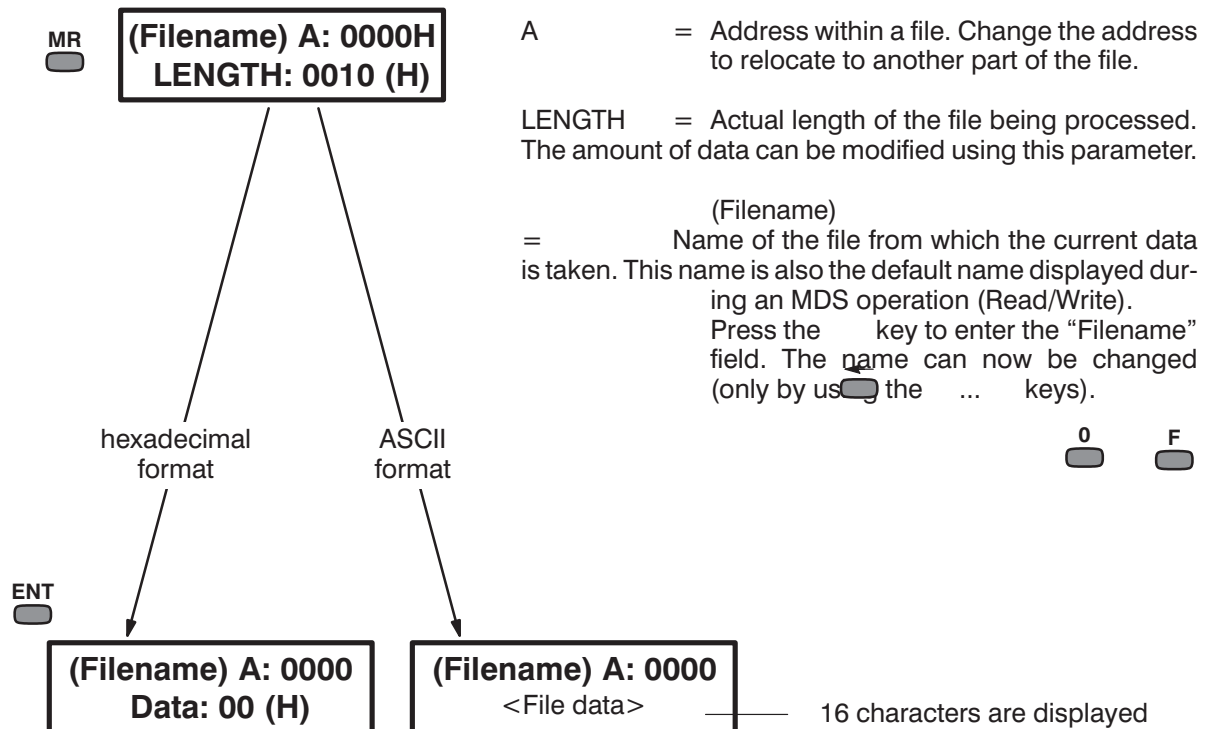
### 5.3 Display and modification of file data

File data can be displayed in 4 ways. Press **HELP** **9** to display the following menu:

**1=Dec 2=Hex 3=AS**  
**4=Bit Format: \_**

- 1 = addresses in hexadecimal; data in decimal format
- 2 = addresses and data in hexadecimal format
- 3 = addresses hexadecimal; data in ASCII format
- 4 = addresses hexadecimal; data binary (8 bit)

Data from the most recently processed file is buffered in STG memory. Only complete files can be read from STG memory. The maximum file size is 16 KByte. Files larger than 16 KByte cannot be processed by STG 4F. Following a READ function, the file data is displayed automatically. It can also be displayed using the MR function (= memory recall):



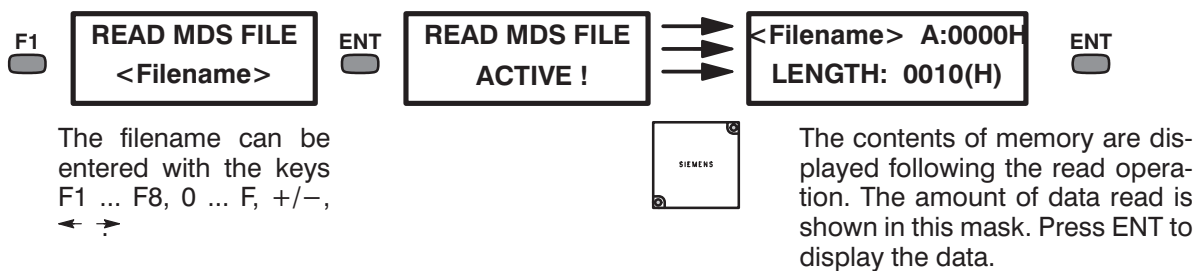
Display and modification of file data:

	1=Decimal	2=Hexadecimal	3=ASCII	4=Binary
Positioning within file data	+ -	+ -	← →	+ -
Input / editing of data	0 ... 9	0 ... F	+ , - , 0 ... F	0 , 1
Confirming new data	ENT	ENT	ENT	ENT

### 5.4 File operations

File operations are invoked using the keys **F1** to **F8**.

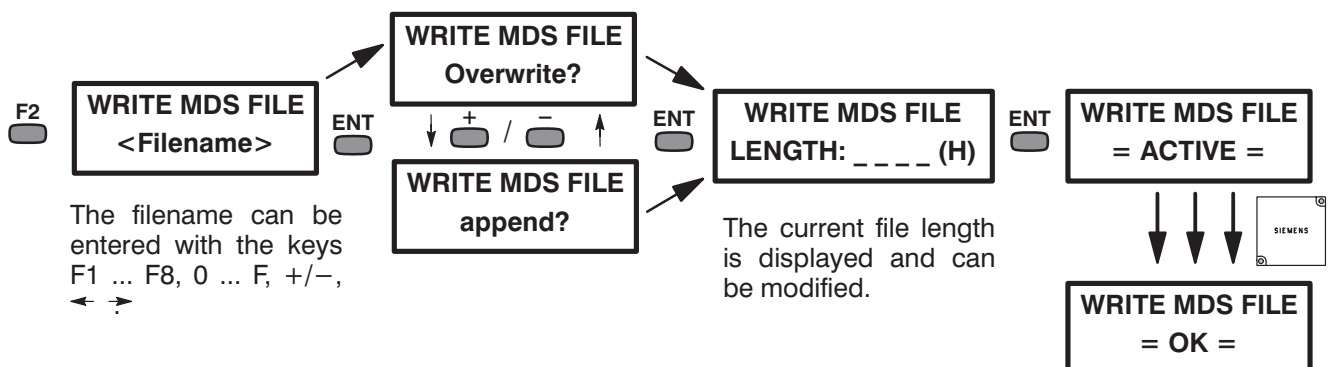
#### 5.4.1 Read file



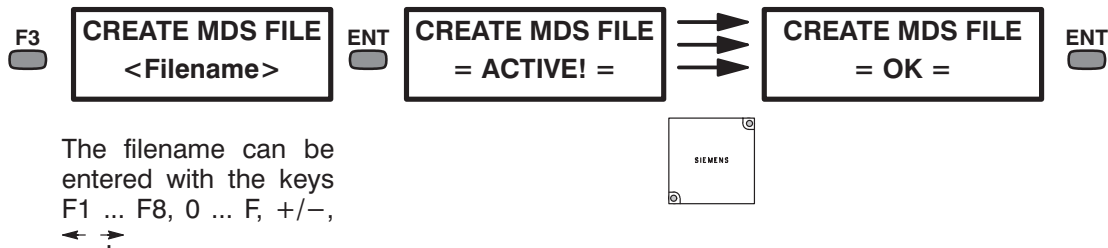
Please note:  
A complete file is always read.

#### 5.4.2 Write file

The file data must be entered using the **MR** function before invoking a write operation (see section 5.3). Filename and length can be reset using the **MR** function. Press the **ESC** key to terminate data input. The write function can now be invoked:

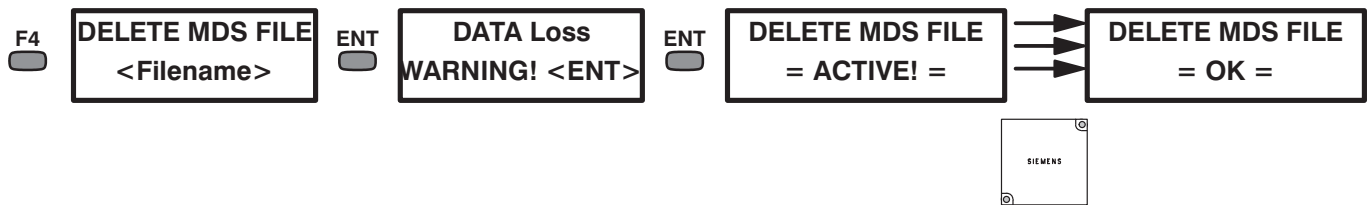


### 5.4.3 Create a new file on the MDS



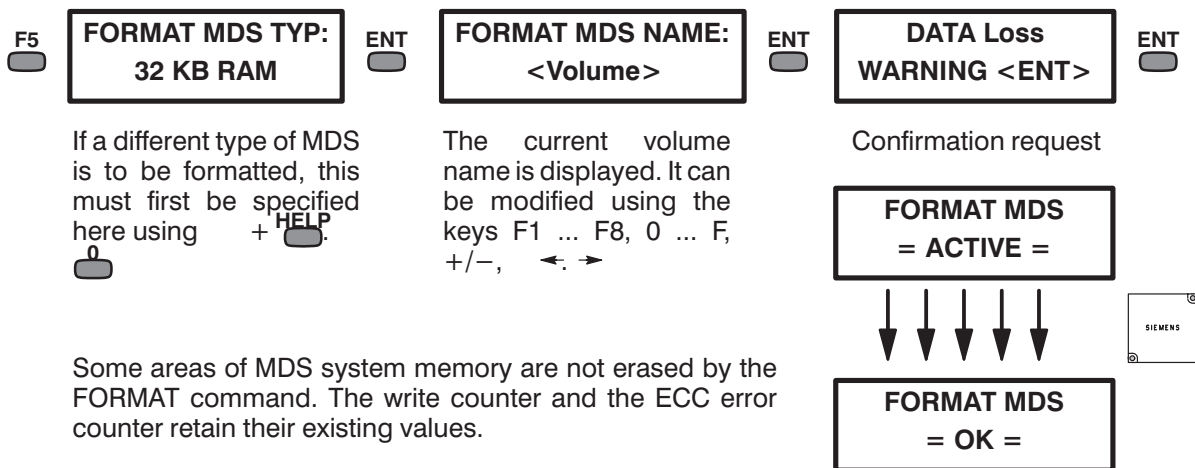
Following this operation, the file will be created in the directory on the MDS. The file is initially flagged as having no data, although 1 block is always reserved for data. This block may already contain some data that will no longer be valid; the create operation does not delete it.

### 5.4.4 Delete a file on the MDS

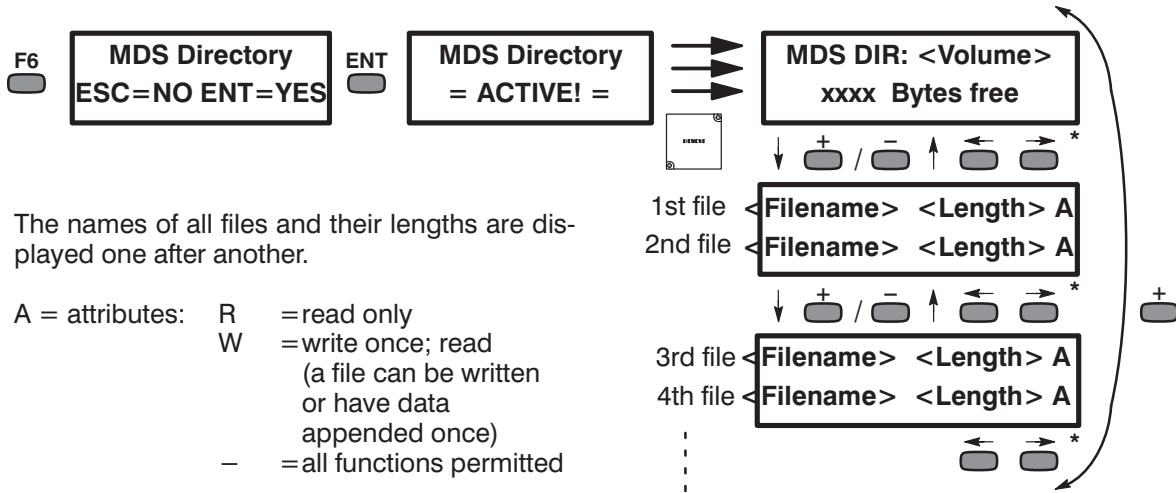


The filename is deleted from the directory. The corresponding memory locations on the MDS are released for other uses. The data itself is not physically deleted.

### 5.4.5 Erase entire MDS and recreate directory



### 5.4.6 Read and display MDS directory

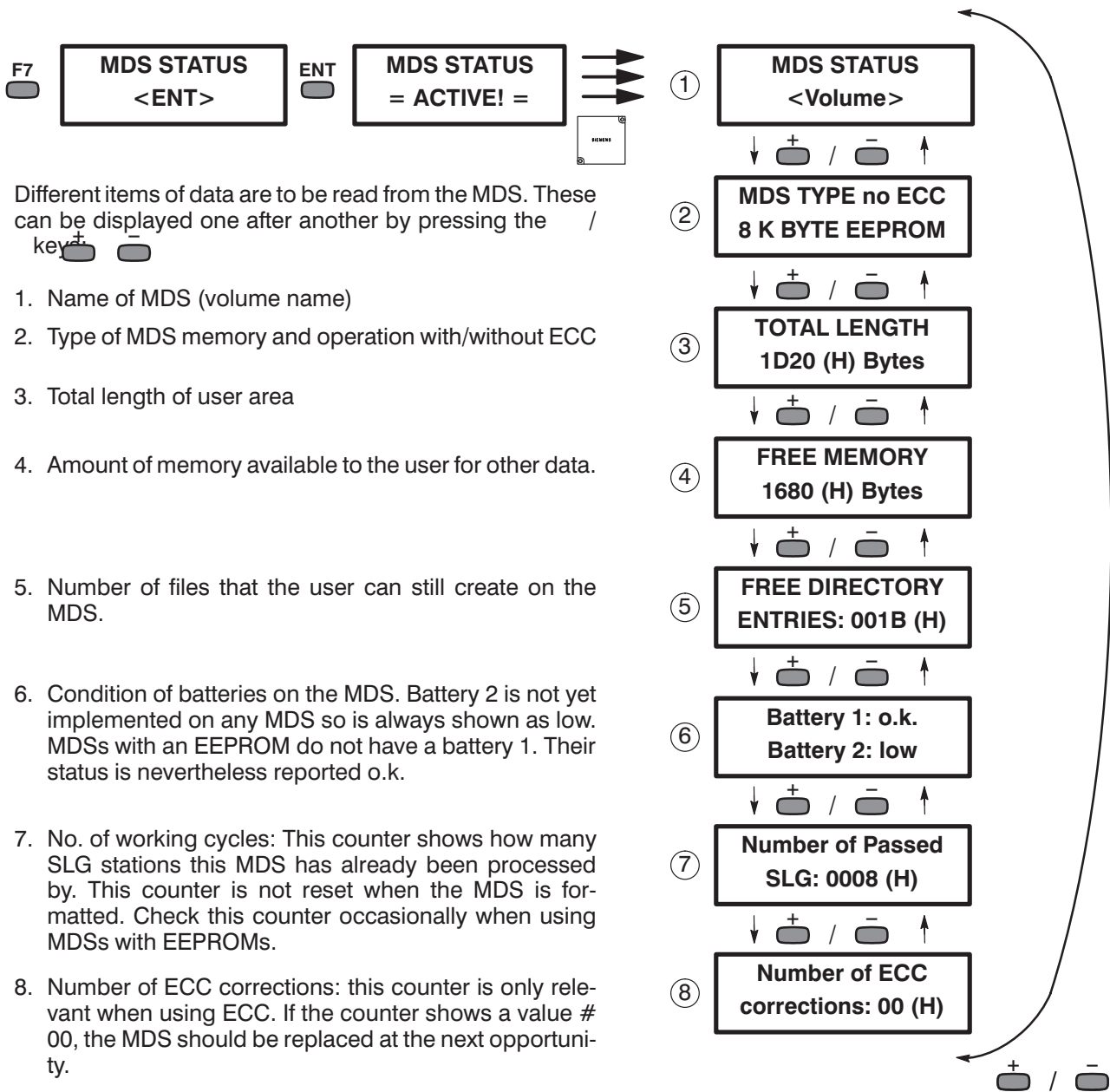


\* After press ← or → following mask will be displayed:



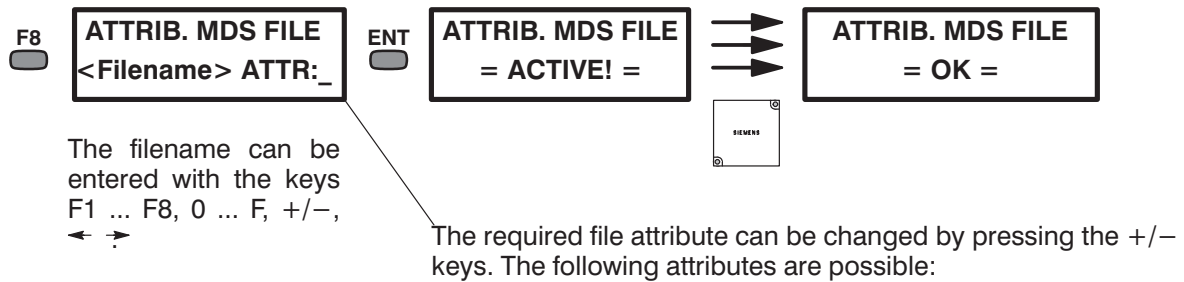
The function ← takes over the 1. filename ( → 2. filename) on the function key F1 to F8 (see chap. 5.2). The complicated input of the filenames with the keys → can be ←.

### 5.4.7 MDS status



### 5.4.8 Set/reset file attributes

This command is used to protect data on individual files.



- = The file has no attributes. All operations are permitted on this file.
- R = Read only; the read command ( **F1** ) the only one that can be performed on this file.
- W = Write once; data can be written to the file once. Overwriting or deleting the file is not permitted. Data can, however, be appended to the file.

### 5.5 Parameterisation

A number of different functions are provided for setting parameters:

**HELP** **0** **MDS TYPE** **> 32 KBYTE RAM** **+** / **-** **ENT**

Specifying the type of MDS is important for the formatting of an MDS ( **F5** function). Processing another type of MDS has **no** effect on this setting.

**HELP** **1** **MODE** **> ECC: OFF FH: EIN** **+** / **-** **ENT**

Two modes of operation are parameterised in this mask:

- a) Enabling/disabling of ECC mode (ECC = Error-Correction-Code)
- b) STG 4 mode
  - filehandler enabled
  - normal STG 4 mode (absolute addressing of an MDS)

**HELP** **3** **SLG-NUMBER:** **FFFF (H)** **ENT**

Enter an SLG no. using keys 0 ... F.  
Range: 0001 ... FFFF

The number specified here is written to the MDS during every MDS operation. It is used by the system to check the progress of the MDS. This number has no real significance in OFFLINE and ONLINE-SLG modes.

**HELP** **9** **1=Dec 2=Hex 3=AS** **4=Bit Format:** **ENT**

Select by pressing appropriate key 1, 2, 3, 4

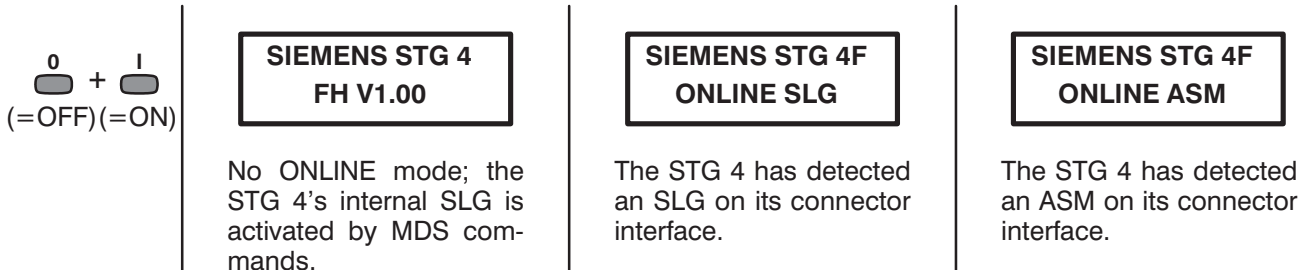
Set display format of the file data. The display format is only relevant for data. Memory addresses and file lengths are always displayed in hexadecimal.



### 5.6 ONLINE mode

The STG 4F can be driven in ONLINE mode in the same way as described earlier in section 4.6. This section looks at the differences and additions provided in filehandler mode.

The ONLINE mode is detected and displayed when the STG 4 is switched on:



#### 5.6.1 Connection of an SLG to the STG 4F

An SLG connected to the STG 4F is automatically detected by the STG 4. The mask sequence is shown below, using a read command as an example:



**Important:**

This mode can only be detected when the SLG is powered by an external 24 V supply.

#### 5.6.2 Operation of the STG 4F on an ASM

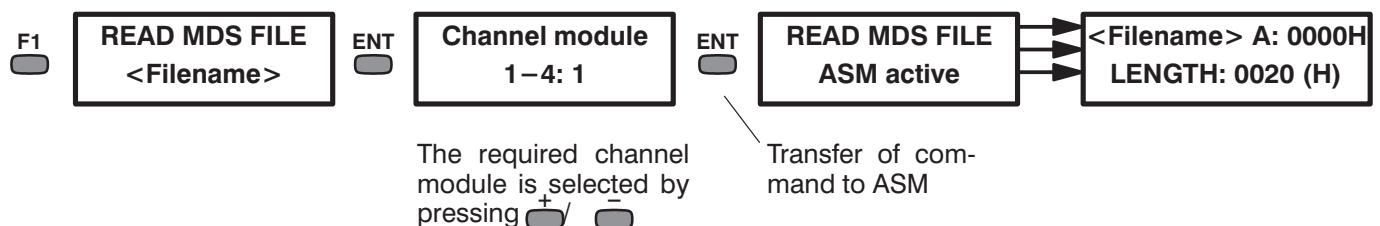
Reset ASM 401:



**Note:**

The RESET-command of the STG 4F interrupts the current ASM-command. The FB 230 gets no acknowledge for the interrupted command.

Using a read command as an example:



**Note:**

The presence of an MDS is not indicated by arrows on the display in this mode.

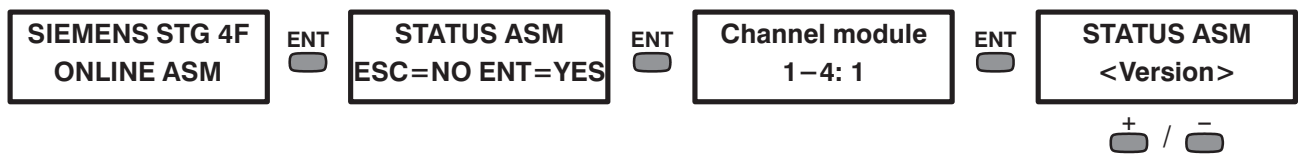
Three further commands are available to the user in this mode:

The Next command:



The Next command is important in order to be able to test the entering/leaving sequences of the MDS (see FB 230 description, EAKO=0).

Interface module status enquiry:



After the ASM version has been displayed, the <sup>+</sup> key <sub>-</sub> can be used to display a number of addresses and data. The most recent command processed by the ASM filehandler and the last acknowledgement telegram sent by the ASM are displayed. The significance of the individual addresses is described in the relevant filehandler manual.

Display and modify ASM parameters



Block length = 40 ... FD  
E/L = Entering/Leaving check: 0, 1, 4

**5.7 Error messages**

All errors detected by the filehandler are displayed. The command will not have been processed properly and the data will be undefined.

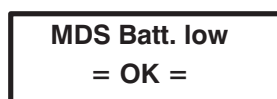
General error display:



A 4 digit error code is displayed in the 1st line. The meaning of each code is shown in the following table.

More serious errors will also be accompanied by a brief message in the second line of the display. The message "<see descr.>" is displayed in all other cases. The description refers to the following table or another filehandler error description.

Besides error messages there are also status messages. Status messages are only displayed in the 1st line of the display in plain text. The command was executed correctly:



The battery voltage of an MDS with RAM memory has sunk below its threshold level. Replace the MDS or its battery.



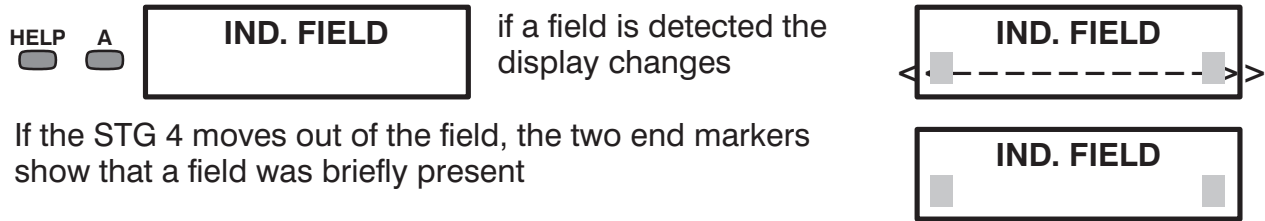
ECC=ON: The ECC driver detected and corrected corrupt data on the MDS.

## Error messages:

<b>A0 06</b>	Unknown command, the command id. KK is invalid	PROTOCOL ERROR
<b>A0 11</b>	1st command block not 1; subsequent block KK or invalid	
<b>A0 15</b>	Checkbyte error (SIMATIC operation only)	
<b>A0 16</b>	Currently processing command from another sender	
<b>B0 01</b>	Faulty SLG connection (3 x flashing of red LED) (SIMATIC operation only)	SLG ERROR
<b>B0 02</b>	1st EAKO command = 1; but no MDS present (Timeout)	
	2nd New MDS in window; no Next command, but command started (EAKO 0) 3rd New MDS has left station without Next (EAKO = 0)	
<b>C0 02</b>	Error in MDS RAM (4 x flashing of red LED on ASM)	MDS ERROR
<b>C0 06</b>	Proximity error (2 x flashing of red LED on ASM)	
<b>C0 07</b>	Parameterisation error in TRACE or FORMAT/Command cannot be interpreted (5x flashing of red LED)	
<b>C0 08</b>	Too many Sync attempts (6 x flashing of red LED on ASM)	
<b>C0 09</b>	Too many Send errors (7 x flashing of red LED on ASM)	
<b>C0 10</b>	CRC Send error (8 x flashing of red LED on ASM)	
<b>C0 11</b>	FORMAT, CRC error while receiving (9 x flashing of red LED on ASM)	
<b>C0 12</b>	FORMAT, MDS will not initialize (10 x flashing of red LED on ASM)	
<b>C0 13</b>	FORMAT, Timeout (11 x flashing of red LED on ASM)	
<b>C0 14</b>	FORMAT, not initialized (12 x flashing of red LED on ASM)	
<b>C0 15</b>	CMD address error (13 x flashing of red LED on ASM)	
<b>C0 16</b>	ECC error (14 x flashing of red LED on ASM)	
<b>C0 17</b>	General driver error (15 x flashing of red LED on ASM)	
<b>D0 01</b>	Reset command expected (1 x flashing of red LED on ASM)	TASK RELATED ERROR
<b>D0 05</b>	Invalid file or volume name	
<b>D0 07</b>	Incorrect data with LOAD command	
<b>D0 09</b>	RESET command parameter incorrect	
<b>D0 14</b>	CREATE and WRITE: the user data area on the MDS is full	
<b>D0 15</b>	FORMAT command expected; MDS not identified	
<b>D0 18</b>	Start address in command outside data area (start address > file length)	
<b>E0 01</b>	The MDS type is incorrect or is incompatible with selected mode (ECC).	DIRECTORY RELATED ERROR
<b>E0 02</b>	CREATE command: no more directory entries available	
<b>E0 03</b>	CREATE command: file already exists in directory	
<del><b>E0 05</b></del>	<del>FAT block sequence error detected during READ or WRITE, the FAT is corrupt</del>	
<b>F0 01</b>	The specified file does not exist	FILE RELATED ERROR
<del><b>F0 05</b></del>	<del>WRITE/UPDATE/DELETE command on file with "Read only" or "Write once" attribute</del>	

## 6. Field indicator

The STG 4 is able to detect and display inductive fields in the frequency range of MOBY–I that could disrupt communications with the MDS.



If the STG 4 moves out of the field, the two end markers show that a field was briefly present

This mode can only be quit by pressing **ESC**.

## 7. Password

A password should always be entered when important STG 4 functions need to be protected from unauthorised personnel. The password consists of 4 characters from 0 ... F. The password can only be entered when the unit is first switched on (see chapter 3) or following a self–test (see section 8.1).

The password protects all write functions, the hardware test and MDS initialization (**F5**).

**Important:** If, after first switching on the unit, a function is activated via the password, the password will not be requested again when the function is repeated.

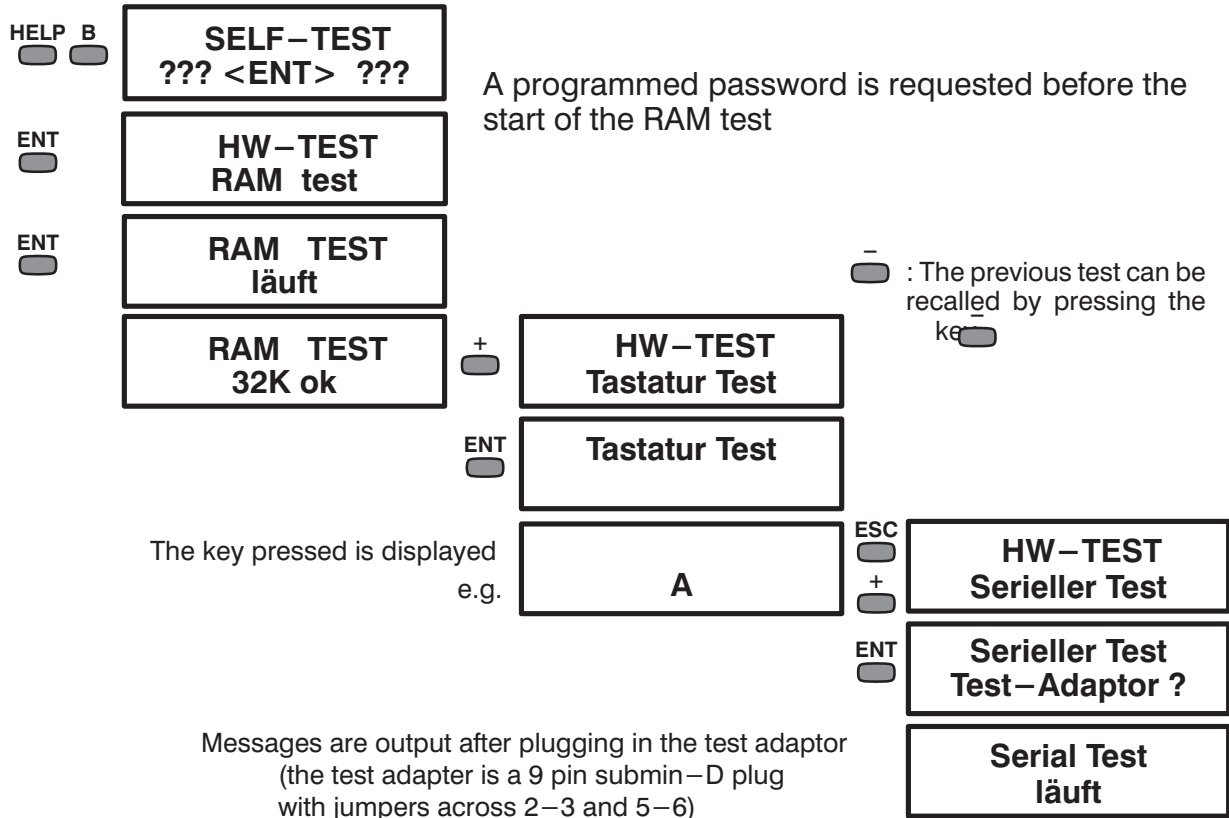
**Beware:** A password

- that is forgotten can only be deleted in the factory
- is lost if the batteries are completely discharged

## 8. Test functions

### 8.1 Self tests

If malfunctions occur when using the STG 4, a quick diagnosis can be performed using the integrated self-test facility. Should an error be detected, then the unit should be sent in for repair.



**Warning!** The unit must be switched off after running the self-test. It will be in its initial operating mode when switched on again (see chapter 3).

## 8.2 Testing an MDS

### Filehandler mode only

This command checks the file structure of the MDS:

- Check of system area
- Directory check
- if ECC=ON: read and verify all MDS data



An error interrupts the current test and an error message is displayed. The test is resumed by pressing ENT.

## 9. Handling and maintenance

The STG 4 is designed for “on–site” applications. It can be used in most normal situations and requires no special maintenance.

It should nevertheless still be regarded as a precision instrument with sensitive electronics and handled accordingly.

The following handling tips should be observed:

- avoid unnecessary knocks and vibrations
- avoid scratching the display and protect from strong, direct sunlight
- sticky liquids, such as Cola, can impair the operation of the keyboard
- avoid letting the batteries discharge completely by recharging in good time
- use the STG 4 charger only (order no. 6GT2003–1AA00).

## 10. Technical data

<b>Microprocessor:</b>	80C537
<b>Memory:</b>	64 KByte EPROM 32 KByte RAM
<b>Operating keys:</b>	32 input keys 2 on/off keys 2 keys to alter contrast
<b>Display:</b>	2x16 digit alphanumeric LCD display
<b>Interfaces:</b>	– RS422–Interface, 4800 or 19200 Baud – Integrated inductive interface – External power supply 10..30 V / 50 mA
<b>Power supply:</b>	4 integral Nicad batteries (Mignon) approx. 500 mAh
<b>Charge times:</b>	– 14 hours with STG charger – approx. 20 hours when charging via the ASM 400 (STG switched off)
<b>Charging current:</b>	50...70 mA (using charger)
<b>Operation with batteries:</b>	at least 8 hours (inductive interface switched off) at least 2 hours (inductive interface switched on)
<b>Housing dimensions:</b>	approx. 210x70x30 (LxBxH)
<b>Weight:</b>	approx. 500 g
<b>Ambient temp.:</b>	0° ...50° C
<b>Degree of protection:</b>	IP 51

11. ASCII character set

Char.	Decimal	Hex.
NUL	0	00
SOH	1	01
STX	2	02
ETX	3	03
EOT	4	04
ENQ	5	05
ACK	6	06
BEL	7	07
BS	8	08
HT	9	09
LF	10	0A
VT	11	0B
FF	12	0C
CR	13	0D
SI	14	0E
SE	15	0F
DLE	16	10
DC1	17	11
DC2	18	12
DC3	19	13
DC4	20	14
NAK	21	15
SYN	22	16
ETB	23	17
CAN	24	18
EM	25	19
SUB	26	1A
ESC	27	1B
FS	28	1C
GS	29	1D
RS	30	1E
US	31	1F
SP	32	20
!	33	21
"	34	22
#	35	23
\$	36	24
%	37	25
&	38	26
'	39	27
(	40	28
)	41	29
*	42	2A

Char.	Decimal	Hex.
+	43	2B
,	44	2C
-	45	2D
.	46	2E
/	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3A
;	59	3B
<	60	3C
=	61	3D
>	62	3E
?	63	3F
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55

Char.	Decimal	Hex.
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A
[	91	5B
¥	92	5C
]	93	5D
^	94	5E
—	95	5F
\	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
	124	7C
}	125	7D
→	126	7E
←	127	7F

Characters in the shaded area cannot be displayed.