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# REPORT

## for SMS 010

### User's Guide

## SMS 010 REPORT

### program

Data subject to change without prior notice

**SPAREP.EXE** Screen 1 of 1

Station 1 of 3		Station alarms		Screen 1 of 1		
Ack	Date	Time	Station	Channel legend	Description	Code
ACK	97-10-21	11:50:46,421	Uasklot h	SPT0 6D3 General	Key switch to R	E02
	97-10-21	11:51:17,130	Uasklot h	O/C module	I> start on	E01
	97-10-21	11:51:17,162	Uasklot h	CH15 legend text	Input channel a	E01
	97-10-21	11:51:17,330	Uasklot h	Circuit breaker	OPEN output act	E05
	97-10-21	11:51:17,331	Uasklot h	SPT0 6D3 General	Shot 1 in progr	E11
	97-10-21	11:51:17,397	Uasklot h	Circuit breaker	Status change;	E01
	97-10-21	11:51:17,443	Uasklot h	CH15 legend text	Input channel r	E02
	97-10-21	11:51:17,730	Uasklot h	Circuit breaker	CLOSE output ac	E07
	97-10-21	11:51:17,731	Uasklot h	SPT0 6D3 General	CB closed by sh	E12
	97-10-21	11:51:17,797	Uasklot h	Circuit breaker	Status change;	E02

Station names		Time
Station:	Uasklot harbour	Current time:
Bay:	Distribution level 2A	97-10-21 11:52:03
Relay:	SPAC 535 C1 Feeder terminal	Station polled at:
Module:	SPT0 6D3 Control module	Strömberg Park
Desc.:	Status change; xx-->01 <close>	97-10-21 11:52:09

PgDn	PgUp	F2	F3	F4	F7	Enter
NEXT	PREV	Stop poll	ACKall	Ackn/Reset	Report	CHANGE

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# I The SMS 010 concept

SMS 010 software as a whole consists of parametrisation, reporting and disturbance evaluation software. The separate software products are combined according to the functionality needed. Furthermore communication equipment is needed according to the system built-up. REPORT is also requiring a SACO 100 M or a SRIO 500 /1000 M data communicator.

The complete SMS 010 software package provides setting, reporting and disturbance evaluation facilities. The separate software products are combined according to the needs.

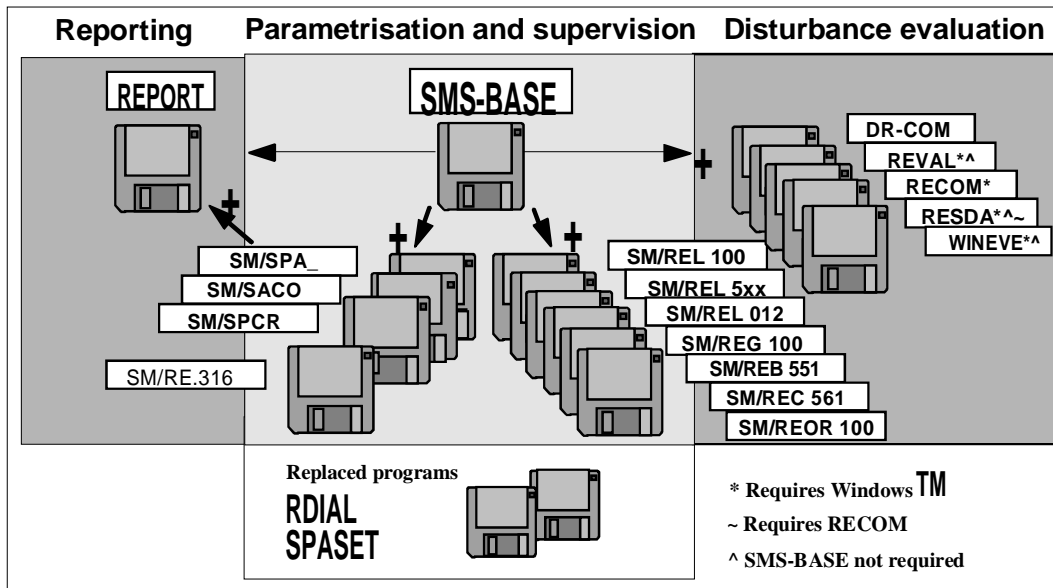


Fig. I.A SMS 010 software structure

SMS-BASE is the basic software that is always needed in order to run a SMS 010 application comprising relays, disturbance recorders and annunciators. Other SMS 010 software modules are added to this program according to the requirements of the application. Depending on the types of protection in use, special software module/-s or programs are needed, e.g. SM/SPA\_, SM/REL 100, REPORT, DR-COM, REVAL, etc.

SMS 010 enables the user to call a relay via a leased line, the public telephone system or, if he is in the station, via a direct optical fibre link to read relay data, events, disturbances and change settings. SMS 010 can also be made to communicate directly to a relay by connecting a cable to its communication interface. For example, when using a SPAC 500/300 relay, it is possible to link SPAC to the PC by connecting the SPAC control module's RS-232 front panel interface to the PC's RS-232 port using the cable supplied with the SM/SPA\_ package. The data read from the SPAC can then be examined in SMS 010.

The current power system load values, recorded values and relay settings can be viewed and the settings can also be changed.

The communication between the PC and the relay is based on the SPA protocol.

With the aid of the PC, it is also possible to create a file with relay settings which only takes a few minutes to download to the protection.

## II REPORT v. 2.1

REPORT v. 2.1 is replacing earlier versions. REPORT versions 2.0 and 2.1 are prepared to use the directory structure created by SMS-BASE v.2.0. or higher. This means that REPORT v. 2.0 or higher is working with any SMS-BASE version, but REPORT versions before v. 2.0 aren't adapted to application structures made with SMS-BASE v.2.0 or higher.

Changes made to REPORT v. 2.1 are:

Handling of date at the years 1999 or higher. This comprises both presentation on the screen and printing. Further more the time synchronisation is prepared to handle years higher than 1999.

Improvements implemented in REPORT v. 2.0:

The handling of logging parameters is increased from 12 to 50 for each station. The logging screen can now be scrolled by a cursor, without having to save the loggings and opening them afterwards by 'F3 file' handling. Explanatory texts about the logging are showed in the 'Station names' box, when moving the cursor. The address of the unit is also appearing on the 'Station logging' screen.

One thing to remember is that even if the station logging has gained improvements is the main task of REPORT still ALARM/EVENT handling. Whenever alarms occur they have the priority of being shown on the screen instead of the logging parameters. The logging parameters, if selected, are showed only when there are no alarms or all alarms have been acknowledged.

The station that were last polled and at what time is also shown in the 'Time' box.

SRIO 500/1000 M are from version 9.10 equipped with a special SYSPAR 32 command that enables, (YES/NO), the sending of date with the events. The events and alarms will then become either the date stored with the event in the SRIO event buffer or the date taken from the PC at the reading moment. But even if SRIO version 9.1 isn't available, then can the date functionality be achieved by daily use of REPORT. The logging parameters are momentaneous values, read directly from the modules, and therefore when reported to SMS 010 REPORT getting the polling time and date from the PC.

SACO 100 M can also from 5.5 be delivered in a special E version that enables sending of the date. This version has then no listing of active alarms function.

The 'REPORT station configuration' contains more settings, enlarged from 11 to 17. Synchronising of SACO 100 M or SRIO 500/1000 M data communicators is now settable, (YES/NO). Stations defined as REPORT stations in the application structures can be excluded from the REPORT stations and included again by a 'Poll this station' parameter, (YES/NO). The printing has become selectable when creating reports, i.e. it is possible to save to file only or it is possible to both save and print as in previous versions. Printing can be set in Linefeed or Formfeed mode. Formfeed means that a 'FF' mark is giving the printer the command to feed the paper to the end, while 'LF' means that the printer waits for more lines to come. If using LASER printers will 'LF' mean that the data is waiting in the laser printer buffer, but it can be printed by manual activating.

## III Summary of the REPORT User's Guide

This User's Guide instructs the user on the normal use of the software product REPORT. REPORT offers the possibility of adding an event/alarm supervision system to PYRAMID protection devices by means of a data communicator, (SACO 100M, SRIO 500 or 1000M), and needed communication equipment as well as SMS 010 software. Events, alarms and loggings are displayed on the screen of a personal computer (PC), printed or saved in files as parts of the SMS 010 application structure, which is created by using SMS-BASE.

From a remote location, the PC communicates with the unit either via a leased line or the public telephone network, or within the same substation by a direct connection.

A typical system using REPORT is presented at the beginning, (section 1.2), of the User's Guide. This is followed by a description of the software installation procedure which includes an example of software configured for a specific application.

## INTRODUCTION

Examples of how to view relay data and set relay parameters are presented in corresponding 'SM/\_\_\_' user guides. Exercises enable a quick start to be made in entering a real protection configuration and taking REPORT to practical use.

How to add a REPORT station, configure the REPORT station and how to use REPORT is also explained.

Running REPORT in stand-alone mode and the adding of Scheduler programs are also examined in this User's Guide.

Finally, the use of telephone modems is explained. The technical specification and operating requirements of REPORT, communication links, a detailed list of the software files and the differences when used in connection with a SRIO/SACO data communicator unit are dealt with in the appendices together with the SPA protocol and trouble shooting sections.

## IV Application

This User's Guide is applicable to REPORT version 2.1.

This User's Guide describes the normal application of the software product REPORT.

Reference should be made to the specific documentation for details of communication hardware and its connection. Those mentioned in this guide are only by way of examples.

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## VIII Conventions in this guide

The following conventions are used in this guide:

<b>A key on the keyboard</b>	<A>
<b>Special keys</b>	<uparrow>, <downarrow>, <leftarrow>, <rightarrow> <Home>, <End>, <PgUp>, <PgDn> <Ins>, <Del> <NumLock>, <CapsLock> <Alt>, <Ctrl> <PrintScrn>
<b>Keys pressed at the same time</b>	<Alt>+<F2>

Texts quoted from the screen are written in 'Quotation' marks. If the position of the text on the screen is important, the whole or part of the screen is shown. Information from the screen is shown in a frame where it is not in quotation marks.

A part of the screen (a window) is represented as:

<b>RAW</b> SPA SRIO
---------------------------

The selected option in a window is in bold print.

A quotation of the above information would read:

'SPA'

The response by the user to a request is set in double quotation marks, e.g.  
"Station 1" or "009" or "xcopy C:\SMS\<Appl. Struct. Name> /s/e a:".

## INTRODUCTION

An interactive dialogue between the user (U) and the computer (C) is sometimes listed in the same way as a script of a play. The following is an example of an interactive dialogue:

C - C:>
U - C:>xcopy *.* c:
C -
U -

## IX Designations and definitions

<b>Relay</b>	PYRAMID relays
<b>SMS 010</b>	A system for setting of parameters, measuring, monitoring, event reporting and disturbance uploading and evaluation
<b>SMS-BASE</b>	The basic software needed to run SMS 010 applications
<b>Application structure</b>	The configuration of stations, protected units, relays and parts of relays and data storage for the relay parts for a particular application
<b>SPA</b>	Data bus and protocol for communication between a 'Master' and a number of 'Slaves'
<b>Master</b>	A unit requesting information
<b>Slave</b>	A unit responding to the requests from the 'Master'
<b>Modem</b>	Two-way converter at a signal interface
<b>Phone modem</b>	Modem between RS-232 and teletype corresponding to the CCITT specification
<b>Fibre modem</b>	Modem for RS-232 between an electrical and a optical fibre communication link
<b>Dataset</b>	A block of data transferred by a relay to a PC
<b>Filename</b>	8 characters or less followed by an extension
<b>Extension</b>	3 characters or less defining the type of file
	The 'extension' starts with '.' and is abbreviated as 'Ext'
<b>.REC</b>	'Ext' for acquired 'received values'
<b>.INS</b>	'Ext' for acquired 'installed values'
<b>.VAL</b>	'Ext' for observed 'validated values'
<b>.EVN</b>	'Ext' for observed 'events'
<b>.LOG</b>	'Ext' for 'logged values'
<b>.CHN</b>	'Ext' for observed 'channels'
<b>LOGGING.DSC</b>	variables to be logged by REPORT
<b>EVENT.DSC</b>	default REPORT event/alarm configuration
<b>CHANNEL.DSC</b>	default REPORT channel configuration
<b>Window</b>	A part of the screen
<b>Default value</b>	Value used when no other value specified
<b>Password</b>	Personal code entered by a user to permit him to modify relay settings
<b>Chapter</b>	Principal part of this guide
<b>Section</b>	Part of a chapter

# 1 WHAT IS REPORT ?

REPORT is a software product that is used for event, alarm and log reporting in the SMS 010 Station Monitoring System. A maximum of 16 stations can be defined as 'REPORT station's in one or more 'Organisation's but within the same application structure.

A complete REPORT system for an application comprises protection relays, a SRIO 500/1000 M or SACO 100 M data communicator, a PC with SMS-BASE installed, REPORT and SM/\_\_\_ product/-s. REPORT communicates with the relays via the SRIO/SACO data communicator unit using the SACO 100M protocol. REPORT synchronises the operation of the entire system.

REPORT can be run continuously, performing the polling of REPORT stations according to the settings in 'REPORT station configuration'.

REPORT is usually started within SMS-BASE by the <F4> REPORT button on Organisation level, but can also be started in stand-alone mode or automatically; either directly from the DOS prompt or by adding command lines to the AUTOEXEC.BAT file, (which means that when the operator turns on the PC, will the REPORT program start without further measures). REPORT can also start other programs, e.g. DR-COM. Chapter 7 in this User's Guide describes the start-up switches and the settings of these used in the scheduler file SPAREP.SCH that starts scheduler programs.

The big advantage with the automatic restart is however for an unmanned SMS 010 station if an power failure occurs. An automatic restart of REPORT will right away start the polling of the stations for events, and no waiting for an operator to start the system is required. However the events might be lost from the modules if there is a power supply failure, but the SRIO 500/1000 M and SACO 100 M have battery backup for the event buffers. If scheduler programs are defined in the SCHEDULER file, these programs, e.g. DR-COM, will also be operating by an automatic REPORT restart.

SRIO 500/1000 M are from version 9.1 equipped with a special SYSPAR 32 command that enables, (YES/NO), the sending of date with the events. The events and alarms will then become either the date stored with the event in the SRIO event buffer or the date taken from the PC at the reading moment. But even if SRIO version 9.1 isn't available, then can the date functionality be achieved by daily use of REPORT. The logging parameters are momentaneous values, read directly from the modules and therefore when reported to SMS 010 REPORT getting the polling time and date from the PC.

## 1.1 The main functions performed by the product

The main purpose of REPORT is to facilitate supervision of the stations in an SMS 010 system by providing event and alarm lists and logs.

REPORT in combination with SMS-BASE enables the user to obtain events with time stamps, to define which events should be regarded as alarms and supervise logging values. However, priority number one has the alarms. This means that whenever an alarm is detected in a REPORT station and hasn't been acknowledged it will be shown on the screen. It isn't even possible to quit the program until all alarms are acknowledged ! There is however no reason for fear, because even if there are unacknowledged alarms will the polling of event and loggings continue as before. This means that the REPORT stations are still polled, event and logging data reports created, according to the settings in the 'REPORT station configuration'.

The REPORT functions and input and output data arrangements (Fig. 1.1.A) introduce the concept of data storage on a station-by-station basis according to the structure of the power system. Data can also be monitored and processed for reports. The station input data consist of instructions for resetting the annunciator alarms and the output data of logged values, (settings, power system load values and recorded values), and events.

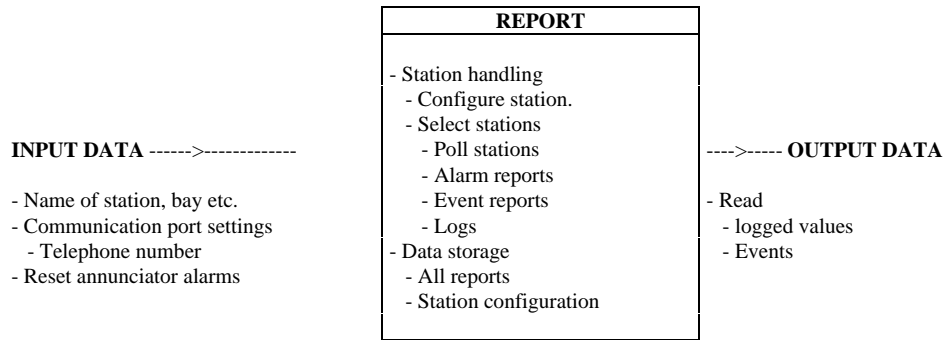


Fig. 1.1.A REPORT functions and input and output data

The user can from the SMS-BASE main menu 'UTILITIES'/'Alter additional configurations' edit the event and alarm tables. The event/alarm and the channel texts can be edited and events masked. The alarms are also defined. NOTE ! An event that isn't included in the event reporting can naturally NOT be used as alarm. Masking of events can be done both in 'UTILITIES'/'Alter additional configurations' and in the relay modules.

Default is that NO logging parameters are selected, hence are no logging values displayed on the screen. By the SMS-BASE menu 'UTILITIES'/'Alter additional configurations'/'Logging tables' are logging parameters selected. A maximum of 50 for each REPORT station is allowed.

The file handling procedure is described in section 1.3.

## 1.2 A typical REPORT system

The REPORT software can run on a PC which is connected either directly to a PYRAMID relay or via telephone modems, (Fig. 1.2.A). The actual configuration of the system can vary, but in all cases there is a SPA loop.

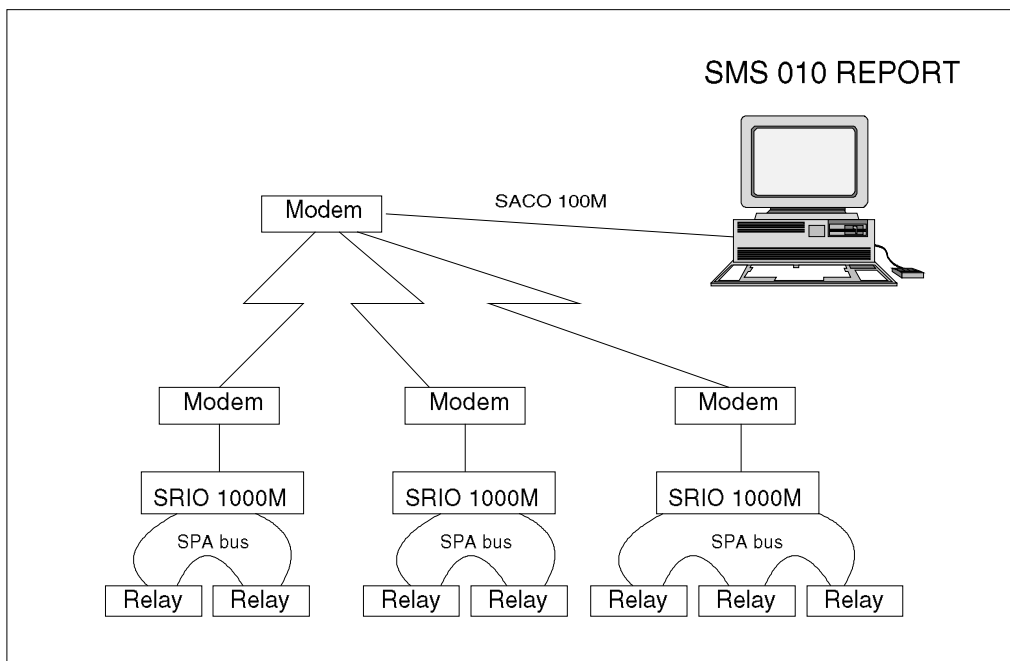


Fig. 1.2.A An example of a system including REPORT with 3 REPORT stations.

### 1.3 REPORT data flow

In a SMS 010 system which includes REPORT, data is stored in the SACO/SRIO data communicator event buffer, in protection units and in the PC. REPORT facilitates the transfer of data between the relays and the PC by reading the event buffers of the station data communicator units each time a station is polled.

In REPORT, an 'Application structure' is defined as the representation of the relays in the real power system structure and is configured using SMS-BASE.

There are three different types of data stored in REPORT, i.e. events, alarms, (events defined as alarms), and logging lists.

The first thing that happens when a polling is performed is that the data is stored in work files. Depending on the 'REPORT station configuration' will the data remain in the workfiles or be reported by creating corresponding \*.ALA, \*.EVE and \*.LOG files for alarms, events and loggings. Loggings are normally not saved at all, this means that no LOGWORK.TMP will be created. If no reporting method is selected has the workfiles to be reported to corresponding \*.ALA, \*.EVE and \*.LOG files manually by 'F3 File' handling and by selecting each work file, one by one, and by 'F7 Report' select 'Report all screens to file'. After this the workfile is emptied. (Until the event and alarm work files are emptied, either automatically or manually, will the entire contents, also acknowledged alarms, be listed again by every polling. The reason for emptying the workfiles is to keep the workfiles slimmed and not have to list data received earlier again, when new events/alarms are detected. Yet another reason is that the data can NOT be deleted in the workfiles, it has to be done from \*.ALA, \*.EVE and \*.LOG files.

After reporting will these files exist:

The REPORT event list is stored in a file of the type 'YYMDDNNN.EVN', the alarm list in a file of the type 'YYMDDNNN.ALA' and a log in a file of the type 'YYMDDNNN.LOG'. The contents of these files can be viewed by selecting the functions 'F3 File'/'Select file type' followed by 'Event file..', 'Alarm file..' respectively 'Logging file..'

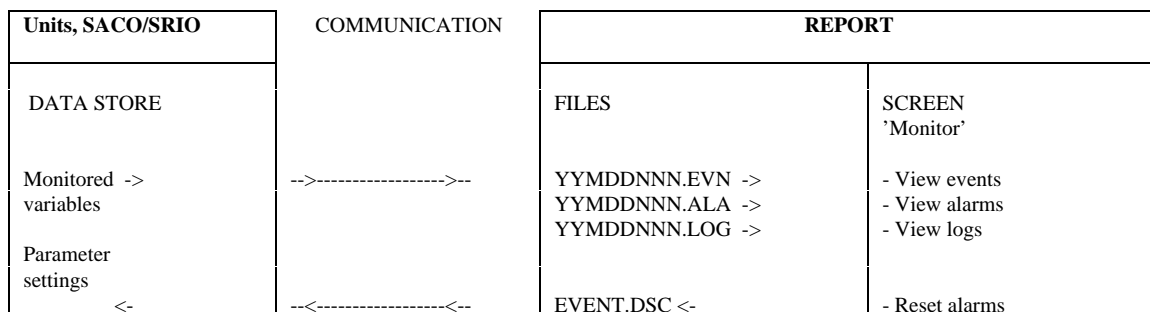


Fig. 1.3.A Data memories and data flow

A file stored by the REPORT program has a name of the following type:

YYMDDNNN.EEE

where:

- YY is the year of the time tag in the event data (0..99).
- M is the number of the month in the event data in hexadecimal format (1..C).
- DD is the number of the day the event data (0..31).
- NNN is the event, alarm or log number assigned by REPORT and stored in hexadecimal format (000..FFF).
- EEE is the extension identifying the type of REPORT file, e.g. event report 9320203F.EVN

## 1.4 Controlling the program flow

The user controls the operation of the REPORT program with the aid of function keys (Fig. 1.4.A). The application structure is edited by running the 'UTILITIES'/'Alter Application structure' menu. Communication problems are traced with the aid of 'Terminal emulator' in the 'UTILITIES' menu.

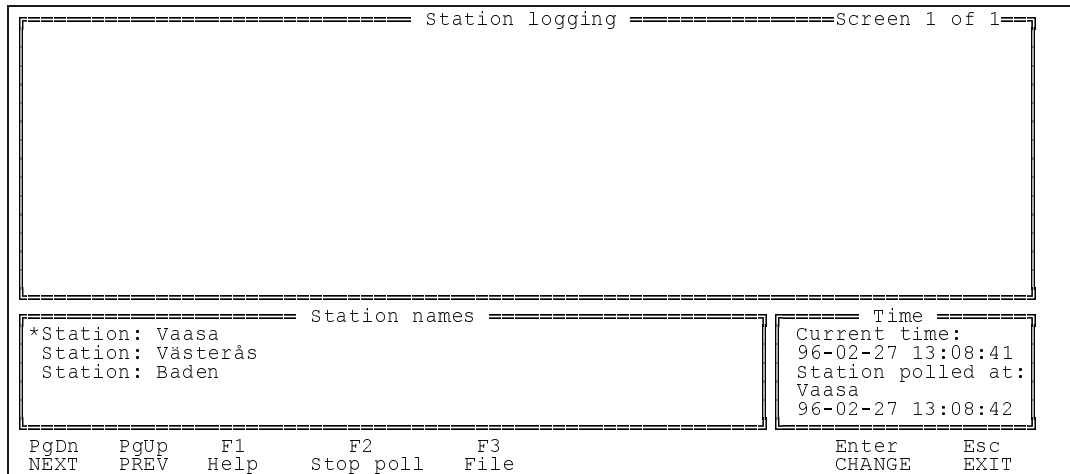


Fig. 1.4.A Main REPORT menu with the active function keys defined on the bottom line

### PgDn (NEXT)

Within the active REPORT session means <PgDn> that next REPORT station is displayed. This is valid also when several stations contain unacknowledged alarms, otherwise is no toggling allowed from the station with unacknowledged alarms.

Within 'F3 File' handling will <PgDn> mean that the next page of the sequence of screens is displayed. For example, if screen 1 of 4 is being displayed, <PgDn> displays screen 2.

### PgUp (PREV)

Within the active REPORT session means <PgUp> that previous REPORT station is displayed. This is valid also when several stations contain unacknowledged alarms, otherwise is no toggling allowed from the station with unacknowledged alarms.

Within 'F3 File' handling will <PgUp> mean that the previous page of the sequence of screens is displayed.. For example, if screen 1 of 4 is being displayed, <PgUp> displays screen 4.

### F1 (Help)

A window with assistance for the user is opened in the centre of the screen.

### F2 (Start poll/Stop poll)

Operation of F2 toggles the text between 'Start poll' and 'Stop poll'. This function enables polling of the stations in the application structure to be stopped without exiting the REPORT station polling routine. The default is 'Stop poll'.

**F3 (File)**

This function key opens a window in the centre of the screen and enables an 'Event', 'Alarm' or 'Log' type of REPORT file to be selected for printing, copying, viewing or deleting. The extensions of these files distinguish them from each other and they are located at the station level in the corresponding application structure directory.

**F7 (Report)**

```

=====Select report mode=====
Report all screens to printer
Report this screen to printer
Report all screens to file
Organization and user name
=====

```

Fig 1.4.B The options available in F7 Report mode

F7 started outside the 'F3 File' handling function:

The F7 REPORT function key opens a 'Select report mode' window, Fig 1.4.B, in the centre of the screen and permits the displayed alarms, (present screen or all screens), to be printed. Provision is also made for setting or changing, (in the same way as for SMS-BASE), the organisation and user name that is saved in the system file (SMS\BASE\DEFAULT.REP). The functions of this REPORT window are the same as for F7 when using the SMS-BASE editor and are active for the list shown on the screen as soon as F7 is pressed.

Used within 'F3 File':

'F3 File' file handling mode and 'F7 REPORT' adds the feature for the user to manually report workfiles, ('Report all screens to file'), into corresponding files, (\*.ALA, \*.EVE and \*.LOG). The program automatically assigns the name.

**Enter (CHANGE)**

This key activates/confirms the selected function.

**Esc (EXIT)**

This key exits without activating the selected function. It also closes an opened window and the REPORT and returns to SMS-BASE.

**Note ! No exiting of REPORT is encouraged until all alarms are acknowledged!**

The layout of a window in REPORT is the same as for SMS-BASE programs. Windows are opened by selecting a menu item and pressing <Enter> and an item in a window is activated by pressing <Enter> again. A window is closed by pressing <Esc>. Movements are made between the fields of a window using the <arrow keys>.

## 2 USING REPORT FOR THE FIRST TIME

Before REPORT can be used for the first time, the software has to be installed on the hard disk of the PC. Other programs needed for efficient use of REPORT is SMS-BASE and some SM/\_\_\_ products for the modules to be included.

This guide assumes that the user is familiar with PC's. The standard installation procedure is presented in detail and some alternatives are briefly discussed.

### 2.1 The parts of the product

The REPORT product is supplied in a binder containing this manual and two floppy disks. The contents of the disks with the REPORT software are presented in detail in Appendix A. REPORT disk 1 contains the program files, while REPORT disk 2 contains an example application structure.

### 2.2 Installing the program

Installation of the REPORT software system involves copying files from the floppy disk to the hard disk 'C:'. The installation procedure presented below assumes that the files are being loaded from the 'A:' drive, but any other 3½" drive may be used.

The program files can also be installed to a directory other than on the root directory of the C drive, but this is considered a special case and is dealt with briefly later.

---

#### *In Brief :*

The normal sequence when installing the program for the first time is:

- 1 Insert floppy disk 1 in drive A:.
  - 2 Change the command prompt to A:>.
  - 3 Determine the main memory and hard disk space using 'RESOURCE'.
  - 4 Compare the result with the requirement for REPORT given in Appendix B.
  - 5 Run the installation program 'INSTALL' on the floppy disk.
  - 6 Press 'ENTER' to install REPORT in the path 'C:\SMS\REPORT\.
  - 7 The files are now installed on your hard disk.
  - 8 The example application structure is installed on your hard disk. (Optional).
  - 9 Change the command prompt back to C:.
- 

If REPORT already exists on your hard disk, the installation program checks its version and providing it is older, starts to up-date it to the new version. Should the existing version be the same as the version on the disks, the message 'Program is up-to-date!' is displayed.

The detailed presentation of the installation sequence which follows assumes that the command prompt is set to show the current directory, i.e. "PROMPT=\$P\$G" is set in your AUTOEXEC.BAT file. The steps of the brief list of operations above are used as headings in the following detailed explanation.

**IMPORTANT to know before installation of SMS 010 products !**

If the harddisk of the PC is defect the installation program might perform an uncompleted installation. The DOS command **CHKDSK**, (**CHKDSK/F** can repair minor faults), can be used to clarify if the harddisk is defect. **SCANDISK** is another command possible to use.

**Note! SMS-BASE must always be installed before REPORT !**

1. Insert floppy disk 1 in drive A:
2. Change the command prompt to A:>  
 C - C:>  
 U - C:>**a:** followed by <Enter>  
 C - A:>
3. Determine the main memory and hard disk space using 'RESOURCE'.  
 U - A:>**c:\sms\base\resource** followed by <Enter>

The following screen appears:

```

===== ABB RELAYS SMS RESOURCE =====
RESOURCES OF THIS PC
- MS-DOS version 5.00
- Basic primary work memory available:      538      kbytes
- Available space at hard disk C:           7.3      Mbyte

Info: The figure for the available basic primary work
      memory does not include the size of this program
                                           -- Version --
                                           RESOURCE 1.0
=====
A:>

```

Fig. 2.2.A 'Resource' shows how much memory is available.

4. Compare the result with the requirement for REPORT given in Appendix B. Compare the available space to that required according to Appendix B. There is no point in continuing with the installation unless there is sufficient main and hard disk memory space!
5. Run the installation program 'INSTALL' for floppy disk 1  
 C - A:>  
 U - A:>**install** followed by <Enter>

The following screens are then displayed:

6. First you select the SMS-BASE home directory:

```

=====Path for your SMS-BASE ?=====
C:\SMS\

```

7. The program is now installed your hard disk:

```

=====Installing/Updating program...=====

```

Fig. 2.2.B Installing the program files

Installation of REPORT on your hard disk is now complete:

```

New program installed !
Press any key to continue
    
```

- 8. The second disk includes an example application structure which is a help when using the program for the first time.

Use for instance C:\SMS\REP-EX\ as path for the application structure or give an own name for the purpose. Recommendation: Use C:\SMS\ as home directory, then you will always have your applications, if many, located at one home directory. Select 'Custom path' when entering the new path, (a maximum of 8 characters is allowed, DOS limit).

The installation can be performed continuously or separately by the INSTALL command at the floppy disk station. Select the path for your application structure.

There are no other limits than the free harddisk space for the amount of installed application structures, which means that it is possible to install the enclosed application examples from other programs, as well. Select 'Custom path' and give the new application name. Notice that it is always the last installed application that will be used, when starting the SMS-BASE program. Changing between different application structures is done within the SMS-BASE program, '**SETUP**/'**Appl. struct. path**' where a new or existing appl. struct. path can be given. Confirm the change by selecting '**SETUP**/'**Save setup**'. Another possibility is '**UTILITIES**/'**Alter application structure**/'**S = AS handling**', (available from SMS-BASE v. 2.0).

- 9. Change the command prompt back to C:

```

C - A: \>
U - A: \>c: followed by <Enter>
C - C: \>
U - Remove the last floppy disk from drive A:.
    
```

How to start the REPORT program is explained in section 3.2.

Providing you used the default paths and depending on what relays are installed, the hard disk will have the following directory tree after installation has been completed:

C:\SMS\REPORT\	Home directory of the REPORT system
C:\SMS\BASE\	Home directory of the SMS-BASE system
C:\SMS\DATA-EX\	Application structure data
SUPPORT\	SMS-BASE auxiliary programs
MODULES\	Descriptions
OTHER\	Descriptions of non-SPA modules and relays
MODEM\	Description of modem
REPORT\	Description of report station

## 3 CONFIGURING AND USING REPORT

This chapter describes the procedure for the REPORT menus and function keys. The application structure is configured using the SMS-BASE 'UTILITIES'/'Alter application structure' menu option.

As described in Fig 3.A is the SMS-BASE program started, (it is assumed that you already have installed SMS-BASE and some example application structure, or even better is that you create your own application). In this User's Guide is a ready-made application structure being used. How you can make an own application structure is described in the SMS-BASE User's Guide, ('UTILITIES'/'Alter application structure' section).

C - C:\>		
U - C:\>cd SMS\BASE	followed by <Enter>	changes directory to ..\BASE\
C - C:\SMS\BASE>		
U - C:\SMS\BASE\SMSBASE	followed by <Enter>	starts SMS-BASE

Fig. 3.A Starting the SMS-BASE program. C equals Computer and U equals User.

How to start REPORT is described in section 3.2. Before you can start using REPORT you will have to add a 'REPORT station' to each 'Station' that is to be polled. This is however done at the 'Object/Bay' level, but valid for whole the station. *Please note in Fig. 3.1.1.A and 3.1.1.D that 'REPORT station' is forming an own 'Object/Bay', separated from the relays and disturbance recorder modules.*

Furthermore has the 'REPORT station' to be configured, at least the address of SACO 100 M or SRIO 500/1000 M has to be given and the communication settings, (Fig. 3.1.1.E), for each station to be used for REPORT polling to be set to SRIO protocol with corresponding parameter settings.

The event/alarm and the logging parameters tables, (section 3.1.3), are informing REPORT which events should be reported, which events are defined as alarms, should audible alarm be given, SACO annunciators resetted and loggings included ? The event/alarm texts as well as the channel description texts can also be edited.

Appendix C is briefly describing the configuration of the SACO/SRIO data communicator.

### 3.1 CREATING A REPORT STATION

#### 3.1.1 Adding REPORT stations

The stations to be polled by REPORT must first be added and configured using SMS-BASE. When the 'Application structure' is configured, (refer to SMS-BASE User's guide), a 'REPORT STATION' section for each station/-s to be polled must be added. Start by 'UTILITIES'/'Alter application structure' from the SMS-BASE main menu to add REPORT STATIONS.

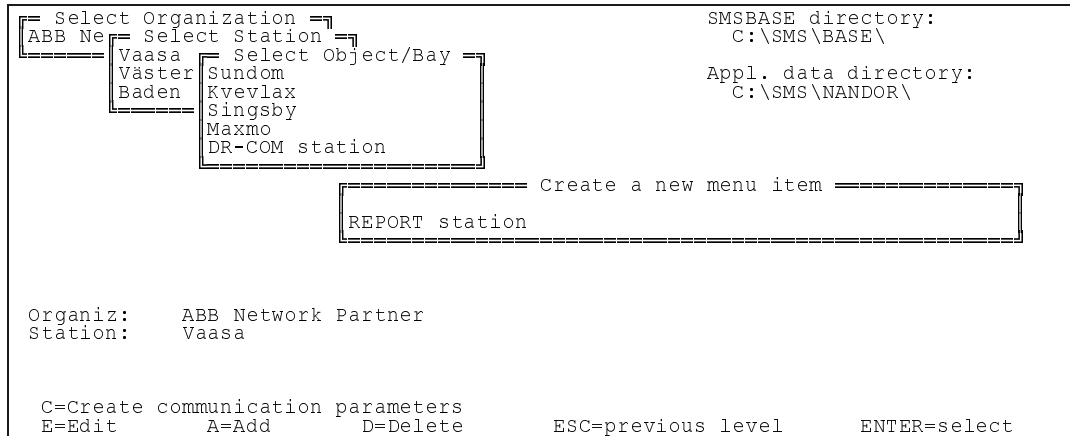


Fig. 3.1.1.A Adding REPORT STATION for Vaasa at the 'Object/Bay' level

On the Unit level select the REPORT STATION from the 'Unit' window opened in the centre of the screen at the 'Unit' level (Fig. 3.1.1.B). After the REPORT STATION 'Unit' has been added, change the address for the 'REPORT STATION' to a slave address not used, (Fig. 3.1.1.D). Address can also be changed at the module level.

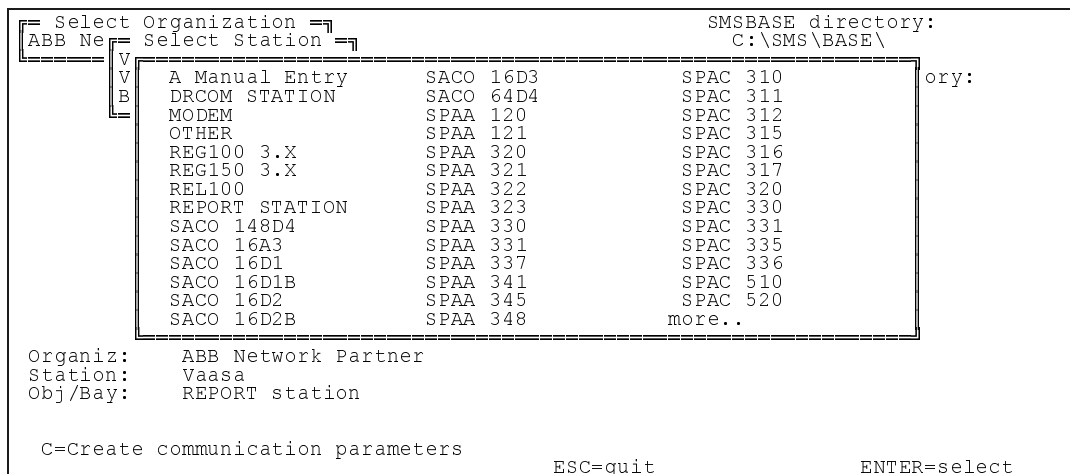


Fig. 3.1.1.B Selecting REPORT STATION at the 'Unit' level for Vaasa

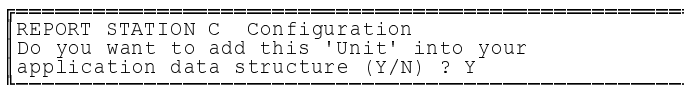


Fig. 3.1.1.C Confirm the adding of a REPORT STATION at the 'Unit' level for Vaasa

```

= Select Organization =
ABB Ne Select Station
Vaasa Select Object/Bay
Väster Sundom
Baden Kvevla
Singsby
Maxmo
REPORT station

SMSBASE directory:
C:\SMS\BASE\

Appl. data directory:
C:\SMS\NANDOR\

Setting SPACOM slave address

Old Default address: 001
New Default address: 440

Organiz: ABB Network Partner
Station: Vaasa
Obj/Bay: REPORT station

C=Create communication parameters
E=Edit A=Add D=Delete ESC=previous level ENTER=select
    
```

Fig. 3.1.1.D Giving the REPORT STATION slave address before it is added to the 'Unit' level

In fig 3.1.1.D is the address for the 'REPORT station' given to 440, but this address is not used for communication, because 'REPORT station configuration' is no communicating module itself ! In this case could any free address be used, e.g. 383 or 400 or...

The station Vaasa can now be configured as a REPORT STATION via the SMS-BASE 'SELECT' menu.

The corresponding communication parameters has to be set to use the SRIO protocol (Fig. 3.1.1.E). Refer to the SMS-BASE User's Guide for the other communication parameters.

```

= Select Organization =
ABB Ne Select Station
Vaasa Select Object/Bay
Väster Sundom
Baden Kvevlax
Singsby
Maxmo
DR-COM station
REPORT station

SMSBASE directory:
C:\SMS\BASE\

Appl. data directory:
C:\SMS\NANDOR\

===== Edit communication parameters =====
Phone no: 161707 161707
Connection: Direct Direct
Serial port: COM1 COM1
Protocol: SPA SRIO
Baud rate: 9600 9600
Parity: EVEN NONE
Data bits: 7 8
Echo: IGNORE IGNORE
Handshake: NONE NONE
Stopbits: 1 1

SPACE=next value ESC=quit ENTER=save
    
```

Fig. 3.1.1.E Communication parameters for the REPORT STATION Vaasa

In Fig. 3.1.1.E are the settings to the right the new settings while the present settings are listed to the left. When using REPORT are the communications settings normally 'Protocol' SRIO, 'Parity' NONE and 'Databits' 8, which differs from the SPA settings. This is due to the connection to the SRIO/SACO data communicator.

### 3.1.1.1 Deleting a 'REPORT station configuration'

The REPORT station can be deleted from 'UTILITIES'/'Alter application structure' by the <D> button at 'Select Object/Bay' level. Of course, also by deleting at a higher or a lower level in the application structure will the 'REPORT station configuration system element be erased.

By adding and configuring a 'REPORT station configuration' is also a copy replicated to the 'Station' level in the application structure. This copy is also deleted every time a 'REPORT station configuration' is deleted. If you for some reason have too many 'REPORT station configuration's in the same 'REPORT station, (ONLY one 'REPORT station configuration' is needed for each station defined as a REPORT station), and deletes the unnecessary ones will the copy at the station level also be deleted. (There is only one replicated copy at the 'Station' level, regardless of how many 'REPORT station configurations you have added to the same application structure station). Correspondingly if the copy then is missing at the 'Station' level in the application structure will REPORT not regard this as a REPORT station ! **This is, however, easily corrected.** Edit and save the remaining 'REPORT station configuration', and you will again be able to run REPORT !

### 3.1.2 Configuring REPORT stations

After the 'REPORT station' has been added to the application structure the 'REPORT station' has to be configured, (Fig. 3.1.2.A). The 'REPORT station configuration' is configured using the SMS-BASE 'SELECT' option and at the module level in the application structure. After opening the 'SELECT function' window at the module level, press <Enter> to open the configuration window for the 'REPORT station settings'.

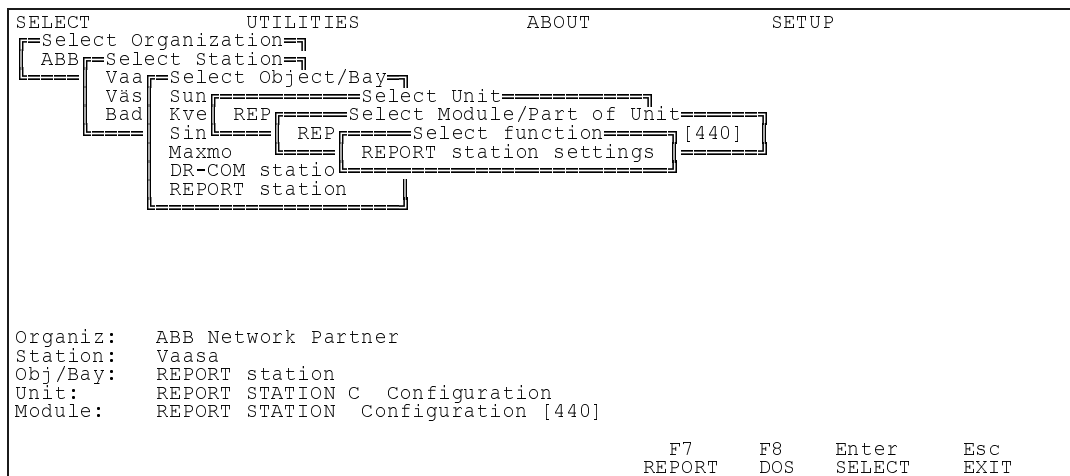


Fig. 3.1.2.A Opening the configuration window for REPORT STATION Vaasa

The 17 parameters that can be set for a 'REPORT STATION' are displayed on two screens. Both 'Present values' and 'New values' are listed. The new values can be entered by the user and the currently valid settings are in the present values window.

```

REPORT STATION ===== v 2.0 =====Screen 1 of 3
REPORT station settings                               26.02.1996

Present values                                     New values
-----
Station unit address-----
SACO/SRIO address      = 899                      SACO/SRIO address      = 901
-----
Synchronize-----
SACO/SRIO              = Yes                      SACO/SRIO              = Yes
-----
Station polling settings-----
Poll this station      = Yes                      Poll this station      = Yes
Poll retry             = 3                       Poll retry             = 3
Poll start synchr.    = 12.00 hh.mm             Poll start synchr.    = 12.00 hh.mm
Poll interval         = 0.02 hh.mm              Poll interval         = 0.10 hh.mm
-----
Report station printouts-----
Printing format        = Formfeed                Printing format        = Formfeed
-----
Set time to synchronise start of the poll interval. Range: 0.00..23.59

PgDn   PgUp   F7       Enter   Esc
NEXT   PREV  REPORT   CHANGE  EXIT

```

Fig.3.1.2.B Settings for REPORT STATION Vaasa

**Following settings are found in screen 1:**

**‘SACO/SRIO unit address’.** The address of the station’s data communicator unit SACO 100 M or SRIO 500 or SRIO 1000 M can be set between 901 and 999 and must agree with the address actually set on the physical unit in the station.

**‘Synchronize SACO/SRIO’.** The SACO/SRIO data communicator can by REPORT polling be synchronised, (‘Yes’/‘No’), with PC date and time. External synchronising of the SACO/SRIO can also be used, then set this option to ‘No’. The events collected by the data communicator after the synchronising will use the new date/time settings.

**‘Poll this station’** is used for including or excluding current ‘REPORT station’ from the REPORT polling. If the stations are several and some station(s) for some reason shouldn’t be polled can REPORT still poll the other ‘REPORT stations’ but omits this station when polling, (‘No’ option).

**‘Poll retry’** is used for determining the amount of retries, if unsuccessful or faulty connection to SACO/SRIO data communicator.

**‘Poll start synchr’** is used for synchronising the polling intervals with a start poll time. Polling is done always when REPORT is started and then according to given intervals.

**Example:**

The user is wanting to poll every 3 hours with start from 18.37. Then is 18.37 the time to give for ‘Poll start synchr’. When the user is starting the REPORT e.g. 10.12 will polling be done every third hour from that time, but when the time 18.37 is fulfilled will the polling be done every third hour calculated from 18.37. However, if the ‘REPORT stations’ are many and long-lasting ‘SCHEDULER’ programs are running the REPORT program might be busy by other sessions at 18.37, but polling is performed at once when suitable occasion is given.

**‘Poll interval’** is the interval within current ‘REPORT station’ is polled. Time resolution is 1 minute, with minimum value 0.00 and maximum 23 hours and 59 minutes, (23.59). If the time is set to ‘0.00’ will the station be polled as often as possible. But take into consideration that with many stations, ‘SCHEDULER’ file programs and if phone modems are used isn’t perhaps the time ‘0.00’ sensible, because more time is needed. Reserve at least some minutes for REPORT to dial the modems, transfer and read data from the SACO/SRIO data communicator and hanging-up the modems. The REPORT program occupies anyhow the time needed for this, but if you have selected logging values to be monitored, covering more than one screen, you will not have any time over for scrolling these screens before next polling is made. (They can though, be reported to file and examined later on).

**‘Printing format’** defines the format used for printing. The printing can be done either as ‘Linefeed’ or ‘Formfeed’. Formfeed is always using a whole paper for reporting, regardless of the length of the created report.

The user can for matrix printers select 'Linefeed' if he wants to fill one paper before starting with next paper. It is then possible to collect several short reports on the same paper. The printing header is always printed, in order to provide with information about the actual report printed.

'Formfeed' is the option recommended with laser, because the data to print remains in the buffer until a 'Formfeed' is given, or something else printed. The operator can with most laser printer see that the 'DATA' or 'READY' led is blinking and can then manually print the buffer. If 'Linefeed' is used is, however, a formfeed given after the amount of lines in the SMS-BASE menu 'SETUP'/'Printer form lines' are "filled-up" with data. This 'Formfeed' will then print the laser buffer.

Refer to Chapter 4 for details about REPORT printouts.

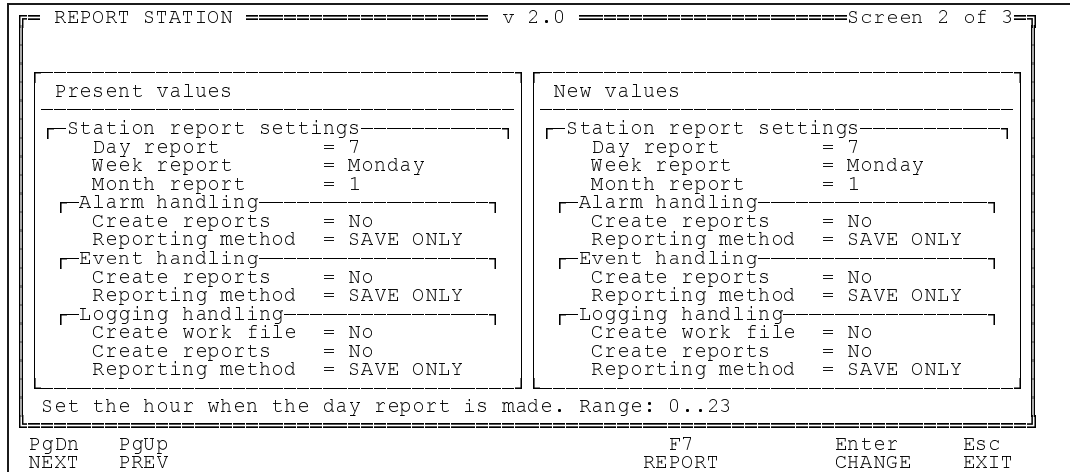


Fig.3.1.2.C Second setting for REPORT STATION Vaasa

The group of settings on screen 2 concerns creating reports for EVENTS, ALARMS and LOGGINGS. These reports, (No, save and save + print), can all be separately configured, but the 'Day report', 'Week report' and 'Month report' options as well as all the settings in screen 1 are if applicable influencing EVENTS, ALARMS and LOGGINGS in the same way when selected.

'Day report', 'Week report' and 'Month report' can have only one value and works independently from each other, this means that if e.g. 'Week report' is selected for lets say EVENTS and LOGGINGS they will all be reported at the same day at the same time, but **not** according to the time in 'DAY report' !

The 'printout' is in this case defined as reporting of workfiles, (ALAWORK.TMP, EVEWORK.TMP, LOGWORK.TMP), to files or both files and printed to paper. (Refer to section 3.2.3.5 for details).

'Day report' is defining at what time, in whole hours, a report is created.

'Week report' is defining at which day in the week a report is created.

'Month report' is defining at which date in the month a report is created.

## Following settings are found in screen 2:

### 'Alarm handling' / 'Event handling' / 'Logging handling'

'Create work file' is only used with LOGGING parameters and if 'No' is selected will no LOGWORK.TMP be created. This means naturally that not any kind of reporting can be done for the loggings. The recommendation is to have this setting as 'No' because if REPORT is run under a longer period with many 'REPORT stations' might the logging parameter files in some rare cases gradually fill up the harddisk space. The \*.LOG files can however be deleted. The main purpose of saving of the logging parameters in files is for examining the behaviour of a parameter or a protection device over short periods.

'Create reports' is the option determining how to handle the data in the workfiles.

The 'Yes', ('Yes' is available only for Events), 'Day', 'Week', 'Month' options will all create new \*.ALA, \*.EVE, \*.LOG files according to 'Create reports' settings. (Printing can also be performed by setting 'Reporting method'). When the option 'Create reports' is set to 'No' will this mean that the workfiles are growing, while the data within them is increased by every poll that supplies with more data. The workfiles can fortunately be manually reported to \*.ALA, \*.EVE, \*.LOG files and also manually printed, (manually means 'F3 File' handling).

Selecting 'Yes' will create a \*.EVE or \*.LOG file every time a polling is performed.

'Reporting method' is defining whether the workfiles are to be reported only to \*.ALA, \*.EVE, \*.LOG files, ('SAVE ONLY') or both to \*.ALA, \*.EVE, \*.LOG *and* printed, ('SAVE+PRINT') Printing is performed according to settings in screen 1.

When the settings for the 'REPORT station configuration' are complete, they can be accepted or rejected when exiting the 'REPORT station configuration' setting session. The settings can also be printed using the report facility of function key <F7>.

#### Note 1

*Unacknowledged ALARMS is preventing any reporting of ALARM workfiles to any format, but not preventing EVENTS or LOGGINGS workfiles be reported. (Polling is done as normal).*

#### Note 2

When the criteria for 'Create reports' has elapsed will concerned \*.ALA, \*.EVE, \*.LOG files be created and printed as well if set, but this is also performed even if the workfile in question happens to be empty.

#### Note 3

The communication parameters, Fig 3.1.1.E, are not set from 'REPORT station configuration'.

#### Note 4

Only the data in a workfile can be automatically reported by 'Create reports'. When reporting is manually done from a workfile to corresponding \*.ALA, \*.EVE or \*.LOG file can naturally not this data be reported by 'Create reports', because the reporting of workfiles is manually bypassed. Data already reported to \*.ALA, \*.EVE or \*.LOG files has to be printed manually, ('F3 File' handling function).

### 3.1.2.1 Examples of 'REPORT station configuration'

This section aims at giving some examples on how to configure a 'REPORT station configuration'. The method for changing of the settings in 'REPORT station configuration' is to mark the setting with cursor and pressing <Enter> which toggles between the settings if not more than two. If the settings are more than two a box with alternatives will be shown or editing mode offered. <Escape> will cancel or another <Enter> leaves the editing mode.

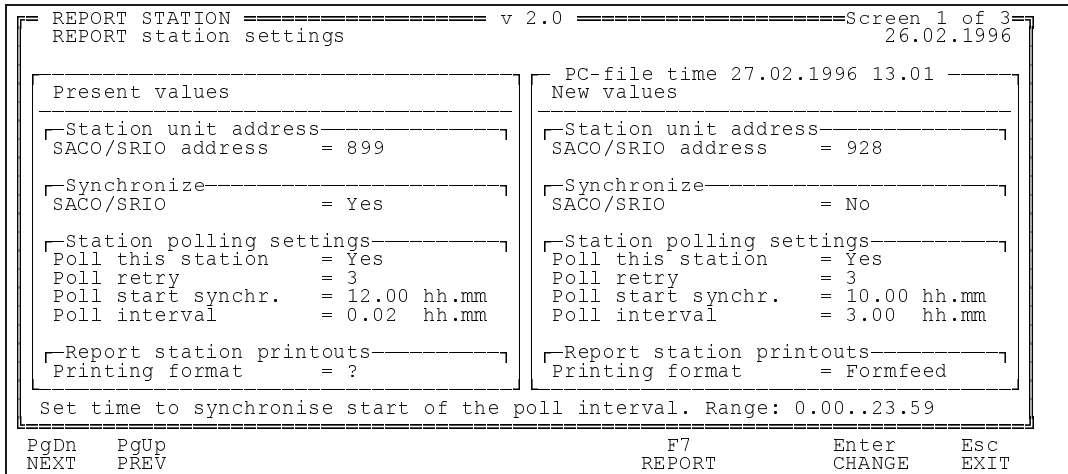


Fig 3.1.2.1.A Setting the 'REPORT station' parameters on screen 1

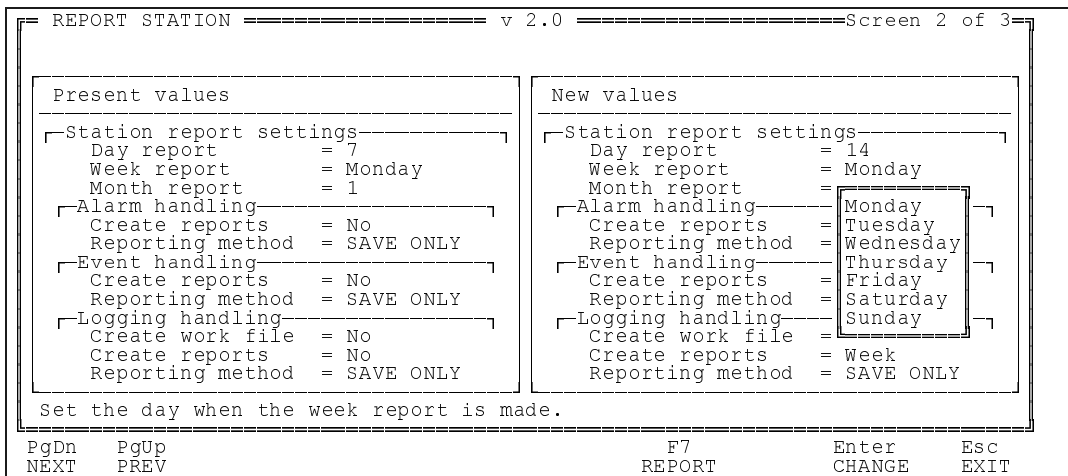


Fig 3.1.2.1.B Setting 'Week report' to Thursday on screen 2

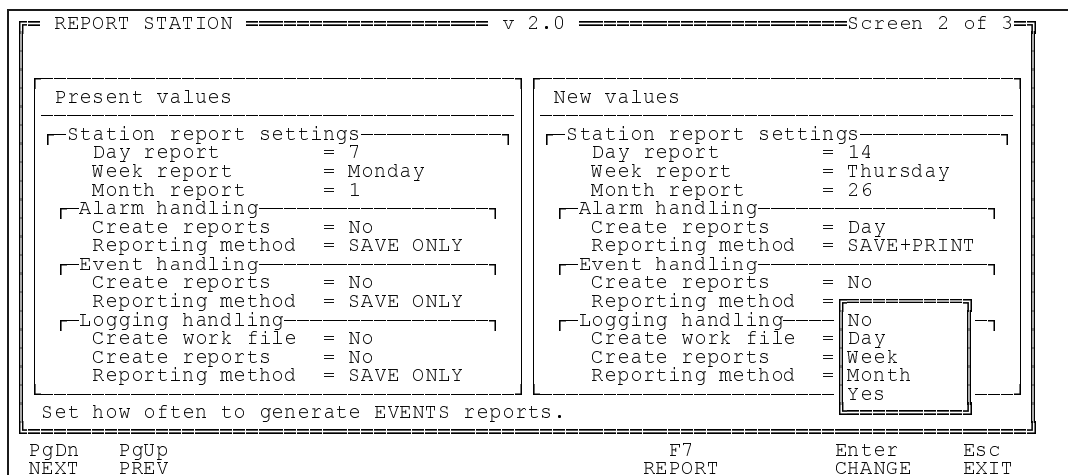


Fig 3.1.2.1.C Setting Event handling 'Create reports' to 'Yes' on screen 2

After the settings are done could the result be like in Fig. 3.1.2.1.D

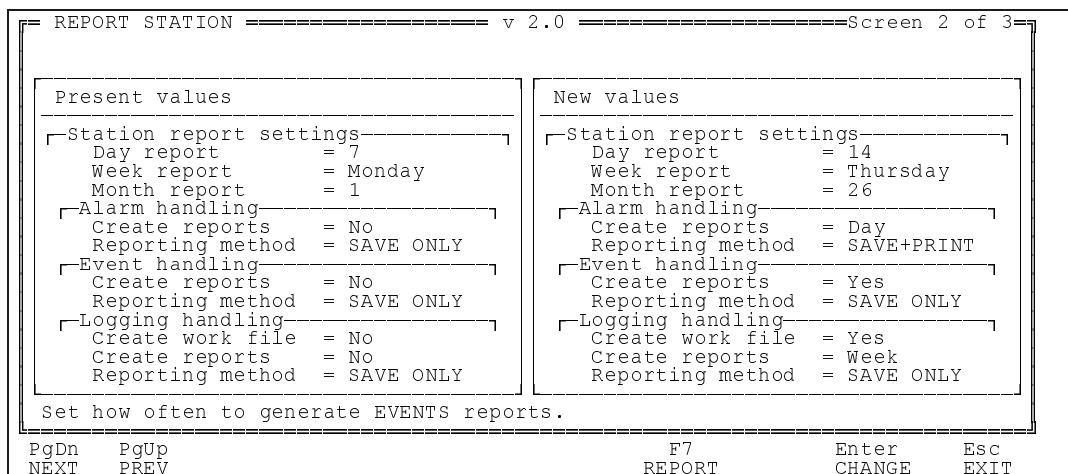


Fig. 3.1.2.1.D Settings for a weekly report from REPORT station Vaasa on Thursdays

In Fig 3.1.2.1.D is following configuration made:

**Alarms:**

ALARMS reports are created every day at 14.00. The report is both printed and saved to \*.ALA file from the ALAWORK.TMP workfile.

**Events:**

EVENTS reports are created immediately by appearance, ('Yes' option). The report is only done to \*.EVE files, ( no printing selected), from the EVEWORK.TMP file.

**Loggings:**

LOGGINGS are saved to the workfile LOGWORK.TMP and once every week on Thursdays at 00.00 is a report to \*.LOG file created.

No month reporting is used. The settings from screen 1, Fig 3.1.2.1.A, are: data communicator address 928, poll start at 10.00, poll interval at every 3 hours and no synchronising of SACO/SRIO data communicator. The 'REPORT station' is of course, included into the stations polled by REPORT. Formfeed is used when printing.

### 3.1.3 Configuring event, alarm and log tables

The event, alarm and the logging parameter tables are forming the REPORT handling of data for each module in the REPORT station. These options determine which events should be reported, which events are defined as alarms, should audible alarm be given, SACO annunciators resetted and loggings included ? The event/alarm texts as well as the channel description texts can also be edited.

Select 'Alter additional configurations' from the SMS-BASE 'UTILITIES' menu to configure the event, alarm and log tables for the station modules (Fig. 3.1.3.A).

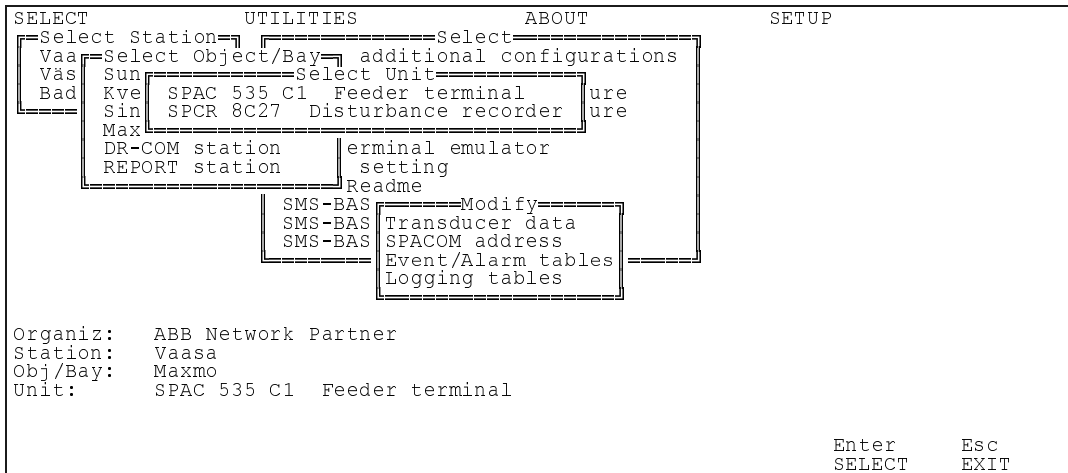


Fig. 3.1.3.A Editing event, alarm and log tables

#### 3.1.3.1 Event/Alarm tables

The default setting for tables is that every existing station event has a default explanation text. The default channel text is only the channel code. By default, all station events generate a visual alarm, no audible alarm and no reset signal is sent back to annunciator unit (Fig. 3.1.3.B).

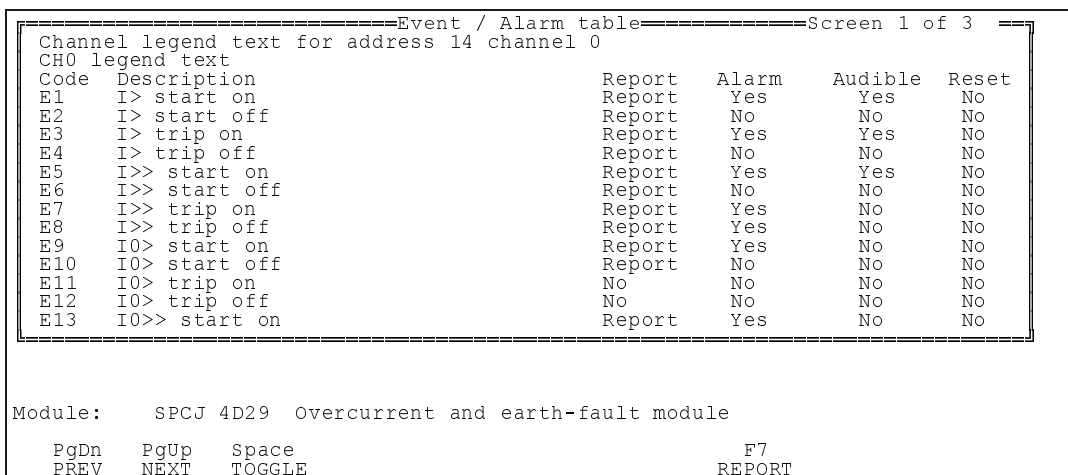


Fig. 3.1.3.1.A Screen for editing the configuration of event /alarm tables for SPCJ 4D29 in SPAJ 140 C.

Any text may be entered for 'Description' and 'Channel legend'. The other parameters are changed by using the space bar to toggle between settings. 37 Characters is the maximum character amount, but 15 will always be visible in the 'REPORT screens. Normally is 15 characters displayed in the REPORT screens, but by marking alarms and events by the cursor is the maximum if 37 displayed in the field 'Descr.' in the 'Station names' box.

The table configuration can be transferred to the printer or saved in a file. The report facility is selected using function key F7, (Fig. 3.1.3.C).

```

=====Event / Alarm table=====Screen 1 of 3
Channel legend text for address 14 channel 0
CH0 legend text
Code  Description          Report  Alarm   Audible  Reset
E1   I> start on            Report  Yes     Yes      No
E2   I> start off           Report  No      No       No
E3   I> trip on             Report  Yes     Yes      No
E4   I> trip off            Report  No      No       No
E5   I>> start on           Report  Yes     Yes      No
E6   I>> start off          Report  No      No       No
E7   I>> trip on            Report  Yes     No       No
E8   I>> trip off           Report  Yes     No       No
E9   IO> start on           Report  Yes     No       No
E10  IO> start off          Report  No      No       No
E11  IO> tri                 Select report mode=====
E12  IO> tri                 Report all screens to printer No      No      No
E13  IO>> st                 Report this screen to printer Report  Yes     No      No
                                Report all screens to file
                                Organization and user name
Station:  Vaas
Obj/Bay:  Maxm
Unit:     SPAC 535 C1 Feeder terminal
Module:   SPCJ 4D29 Overcurrent and earth-fault

PgDn  PgUp  Space
PREV  NEXT TOGGLE
    
```

Fig. 3.1.3.1.B The 'Event/alarm table' report mode activated by pressing F7

The default setting of the reporting function is to save the configuration in a file in the application structure. This file can also be directed to some other location, e.g. a floppy disk (Fig. 3.1.3.D).

```

===== Report all screens to file =====
Report to file: C:\SMS\DATA-EX3\0001\S001\0002\U001\M001\EVENT.SRP
    
```

Fig. 3.1.3.1.C Saving an 'Event/alarm table' report in a file

When terminating the 'Modify'/'Event/Alarm table' session, the user is requested to either confirm or reject the changes. Press 'Y' followed by <Enter> to save them.

### 3.1.3.2 Log tables

The log table enables selecting of up to 50 parameters totally from all modules in the REPORT station to be logged. The corresponding variables will be updated on the screen every time the corresponding station is polled. The variables polled are usually measured and recorded values (Fig. 3.1.3.E). The default setting is No parameter logging. The log settings can also be transferred to a file or a printer using the function key F7.

Note ! The logging parameter description texts cannot be edited.

```

=====Logging table=====Screen 3 of 6
Code      Addr  Parameter description                               Show
I1        14    I1 - current L1 - IN                               logging
I2        14    I2 - current L2 - IO                               Yes
I3        14    I3 - current L3 - IC                               Yes
I4        14    I4 - neutral current - ID                          Yes
I5        14    I5 - Blocking or control signal                    No
V1        14    V1 - Max. current - Id                             Yes
V2        14    V2 - Number of startings of stage                  No
V3        14    V3 - Number of startings of stage                  No
V4        14    V4 - Number of startings of stage                  No
V5        14    V5 - Number of startings of stage                  No
V6        14    V6 - Tripping phase data, coded                    No
V7        14    V7 - Operation indicator                           No
V8        14    V8 - Highest max. current - DI                     Yes
V11       14    V11 - Current in phase L1 at start                  No
V21       14    V21 - Current in phase L1 at start                  No
V31       14    V31 - Current in phase L1 at start                  No
Module:   SPCJ 4D29 Overcurrent and earth-fault

PgDn     PgUp     Space
PREV     NEXT     TOGGLE

F7
REPORT
    
```

Fig. 3.1.3.2.A Editing a log table

### 3.1.4 Configuring and using a modem

Details of how to configure a modem are to be found in the SMSBASE User's Guide, 1MRS 750146-ESD Version B or C. The same modem program is used for SMS-BASE and REPORT with the exception that when the modem program is started from REPORT, it runs in the background every time polling is carried out, (dialling and hanging-up automatically), whereas in SMS-BASE the user has to expressly start it manually, e.g. by pressing 'F3 MODEM'.

The modem dials the telephone number set in the stations communication parameters in the SMS-BASE application structure.

### 3.1.5 Configuring the data communication controller SACO/SRIO

The data communications controller must be properly configured before running REPORT. The most important parameters are the baud rate, COM port, stop bits, data bits and parity. The settings for these parameters must be identical to those configured for the corresponding station in SMSBASE.

The configuration of the communication controller can be programmed using the SMS-BASE terminal emulator. The Terminal emulator is described in the SMS-BASE User's Guide.

The configuring of the unit lists and the output interface is described in appendix C as well as the SYSPAR 32 setting from SRIO versions 9.1.

## 3.2 STARTING AND USING REPORT

Once all the features of REPORT have been configured, the program is started by opening the SMS-BASE 'SELECT' menu, selecting the station and pressing the function key F4, (Fig. 3.2.A).

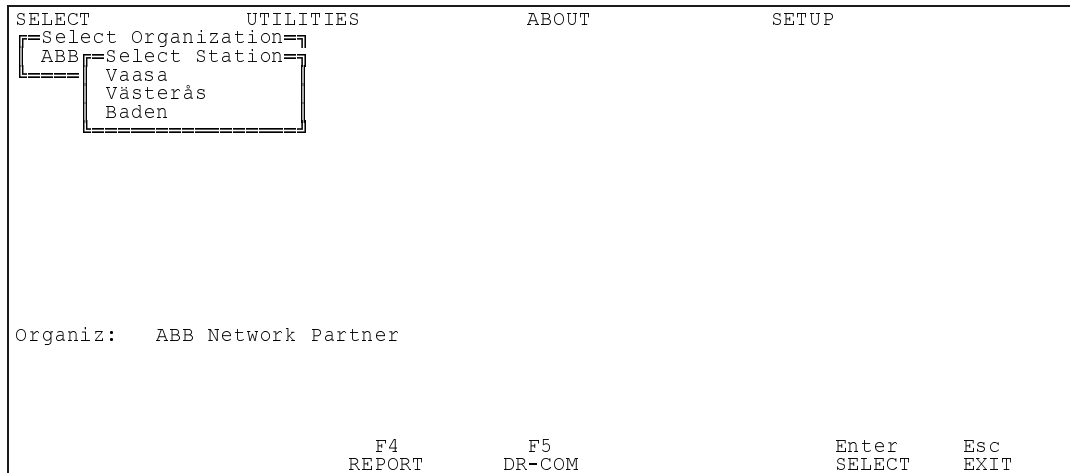


Fig. 3.2.A Starting REPORT

Upon pressing <F4>, REPORT commences to poll all the REPORT stations one after the other. The initial screen will show the 'Station logging' window of the first REPORT station. If no variables were configured for logging, the 'Station logging' window will be empty (Fig. 3.2.B).

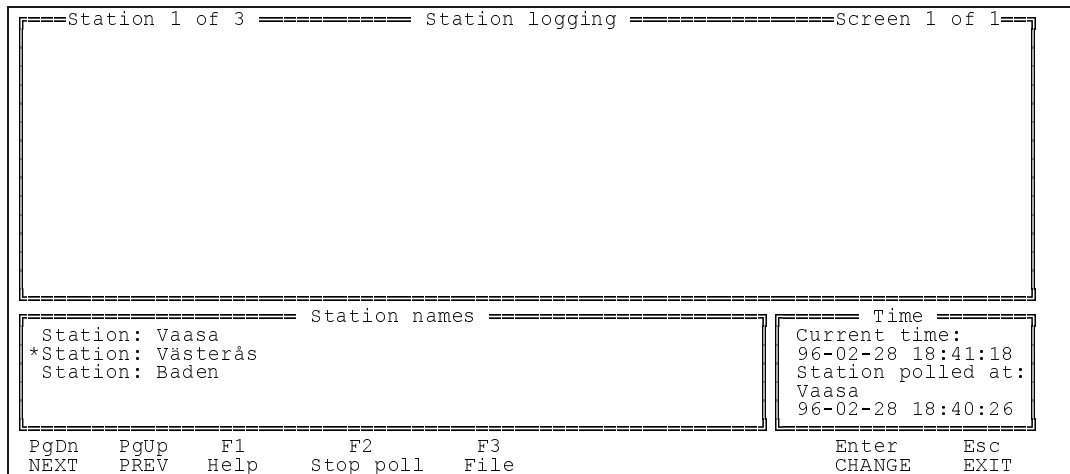


Fig. 3.2.B Initial REPORT logging window

In Fig. 3.2.B is the 'Time' box working by following principles: The 'Current time' is stopped when other processes are run, e.g. polling of some station or 'F3 File'. The field 'Station polled at' displays the station that were polled last and also at what time this was done.

When polling is performed REPORT cannot respond to any user activity until the polling is finished, which means that the user has to wait for a idle situation before measures can be taken. The key strokes are placed in queue, waiting for a suitable occasion to be done.

### 3.2.1 Handling REPORT alarms

The handling of alarms is one of the main functions performed by REPORT. It is always activated when an event which is configured as an alarm occurs in a REPORT station. The first thing that invariably happens in this situation is that the alarm screen appears. The last screen is always the one displayed when an alarm occurs. The cursor is located at the last unacknowledged alarm. The cursor can be moved around the alarm screens using <PgDn>, <PgUp> and the <arrow keys>, meanwhile the cursor is moved around is the 'Station names' box displaying additional data.

The function key < F3> enables all the alarms to be acknowledged at the same time. This can be especially useful, if a fault requiring no further analysis has generated a lot of alarms.

Function key <F4> only acknowledges the alarm marked by the cursor. If one of the active alarms was configured to generate an audible warning, it is turned off, (refer to remarks made last in section 7.4), when <F4> is pressed for the first time, <F4> has to be pressed a second time to acknowledge the alarm. A reset signal is transmitted to SACO units for those alarms configured to be reset automatically. Only SACO units can respond to such reset signals. (If several stations are polled after each other cannot the audible alarm be acknowledged until all stations are polled.)

Function key <F7> opens the report window. In the alarm handling mode, the report can only be directed to the printer and not to a file. Should the user wish to manually save an alarm list in a file, the file handling function activated by <F3> has to be used. (Accordingly has the alarms to be acknowledged first because it is the same button, ('F3 ACKall')).

Station 1 of 3		Station alarms			Screen 6 of 7	
Ack	Date	Time	Station	Channel legend	Description	Code
	Prev. screen					
ACK	96-02-27	14:38:17,607	Vaasa	Circuit Breaker	CLOSE output ac	E07
ACK	96-02-27	14:38:17,609	Vaasa	CH0 legend text	CB closed by sh	E12
ACK	96-02-27	14:38:17,679	Vaasa	Circuit Breaker	Status change;	E02
	96-02-27	14:40:30,278	Vaasa	CH0 legend text	I> start on	E01
	96-02-27	14:40:30,930	Vaasa	Circuit Breaker	OPEN output act	E05
	96-02-27	14:40:30,931	Vaasa	CH0 legend text	Shot 1 in progr	E11
	96-02-27	14:40:30,933	Vaasa	CH0 legend text	I> trip on	E03
	96-02-27	14:40:30,933	Vaasa	CH0 legend text	TS2 on	E25
	96-02-27	14:40:30,948	Vaasa	CH15 legend text	Input channel a	E01
	96-02-27	14:40:30,983	Vaasa	Circuit Breaker	Status change;	E01
	Next screen					

Station names				Time	
Station:	Vaasa			Current time:	96-02-27 14:41:09
Bay:	Maxmo			Station polled at:	Vaasa
Relay:	SPAC 535 C1 Feeder terminal				96-02-27 14:40:00
Module:	SPTO 6D3 Control module				
Desc.:	Status change; xx-->10 (open)				

PgDn	PgUp	F2	F3	F4	F7	Enter
NEXT	PREV	Stop poll	ACKall	Ackn/Reset	Report	CHANGE

Fig. 3.2.1.A The 'Station alarm' window

#### 3.2.1.1 Handling REPORT events

All events reported by the data communicator and included in REPORT, ('Event/Alarm tables'), are stored in the \*.EVE or EVEWORK.TMP files. The events in these files are not displayed in the active REPORT session, which means that if no events are configured as alarms no received events will be shown on the screen. Naturally, the user will have to check for events in the \*.EVE or EVEWORK.TMP files by 'F3 File' handling. The user can himself define the events that require extra attention by setting these events as alarms also, (Event/Alarms tables).

By setting the 'REPORT station settings' create event reports to printing mode, of course, the detected events are revealed by the reports printed.

### 3.2.2 Handling REPORT logs

The 'Station logging' function can be used, for example, for analysing phenomena on the power system by logging relevant data and saving the data in a file for subsequent analysis.

A maximum of 50 parameters per station can be logged simultaneously. Usually the analog variables are the most interesting, e.g. IL1, IL2, IL3, IO etc. These loggings are displayed on the screen for each station, except from when alarms are unacknowledged, which means that the screen is occupied. The logging parameters are displayed as soon as the alarms are acknowledged.

If REPORT has more than one station to poll (max. 16), the display can be toggled between the stations using the <PgUp> and <PgDn> keys.

*Note! The use of the 'Station logging' function for continuous use is not recommended, because a new logging data is added every time the stations are polled and the hard disk on the PC will gradually become full!*

Station logging						Screen 1 of 2	
Date	Time	Description	Unit	Code	Value		
96-02-28	18:48:17	kWh value per pulse	99	S3	150.00	kWh	
96-02-28	18:48:17	Active energy (kWh)	99	V8	0.00		
96-02-28	18:48:17	Tot. number of AR cycl.	99	V20	2.00		
96-02-28	18:48:17	I1 - Measured current on	14	I1	78.00	A	
96-02-28	18:48:17	I2 - Measured current on	14	I2	84.00	A	
96-02-28	18:48:17	I3 - Measured current on	14	I3	84.00	A	
96-02-28	18:48:17	I4 - Measured neutral cu	14	I4	0.00	A	
96-02-28	18:48:17	I1 - Measured neutral vo	15	I1	16600.00	V	
96-02-28	18:48:17	I2 - Mesured neutral cur	15	I2	7.00	A	
96-02-28	18:48:17	I3 - Measured value Io c	15	I3	0.00	A	
96-02-28	18:48:17	I1 - Measured value of t	2	I1	0.00	V	
Next screen							

Station names		Time	
Station:	Vaasa	Current time:	96-02-28 18:49:33
Bay:	Maxmo	Station polled at:	Vaasa
Relay:	SPAC 535 C1 Feeder terminal		96-02-28 18:48:00
Module:	SPCJ 4D29 Overcurrent and earth-fault module		
Desc.:	I1 - Measured current on phase L1		

PgDn	PgUp	F1	F2	F3	Enter	Esc
NEXT	PREV	Help	Stop poll	File	CHANGE	EXIT

Fig. 3.2.2.A The 'Station logging' window

In figure 3.2.2.A is the 'Unit' field telling the module slave address. The 'Value' field is, depending of logging parameter in question, giving the measured values calculated from corresponding transformer values given for each unit in SMS-BASE, 'UTILITIES'/'Alter additional configuration'/'Transducers'

### 3.2.3 Handling REPORT files

The REPORT file handling function is started by pressing 'F3 File'. Sometimes this means acknowledging of alarms first, because it is the same button. Polling of stations is discontinued while files are being handled. The function provides handling facilities for four different kinds of files, i.e. event, logging, alarm and work files (Fig. 3.2.3.A).

In Fig. 3.2.3.A is following to be noticed:

The different data types, (alarms, events, loggings and corresponding workfiles), are categorised into own items and according to 'Station'.

Furthermore, if logging parameters are displayed for the station selected, will these logging parameters be displayed in the background in the 'Station logging' screen. This is, however, not interfering with the functions selected. When opening some files are the logging parameters successfully covered by the new window.

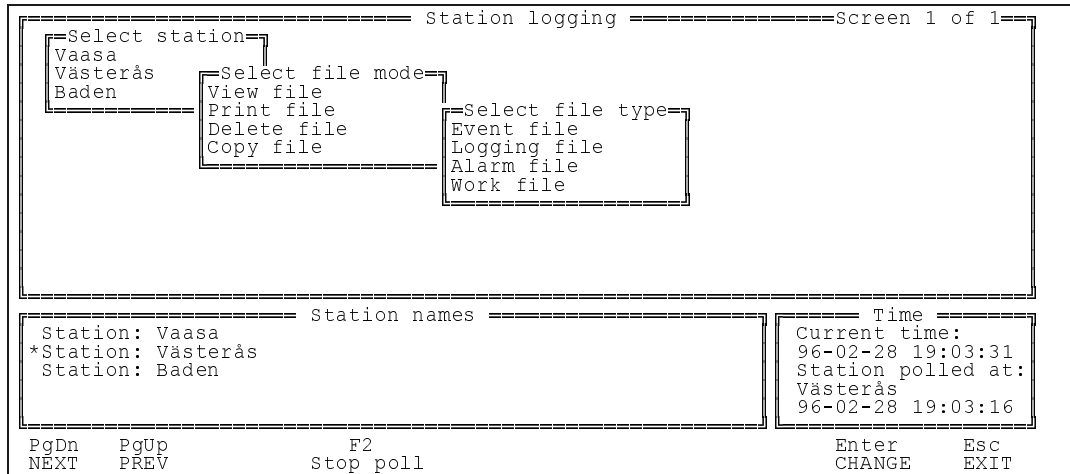


Fig. 3.2.3.A. REPORT file handling windows

### 3.2.3.1 File handling modes

All REPORT files can be viewed, printed, deleted and copied. The mode must always be selected before selecting the file type.

While files are viewed on the screen, ('View file', there is also the possibility of transferring the screen contents to a printer or to a file by pressing 'F7 report'. The 'Report all screens to file' alternative is used, when selected work file is manually reported into corresponding file, (\*.ALA, \*.EVE or \*.LOG). The workfile will then be emptied.

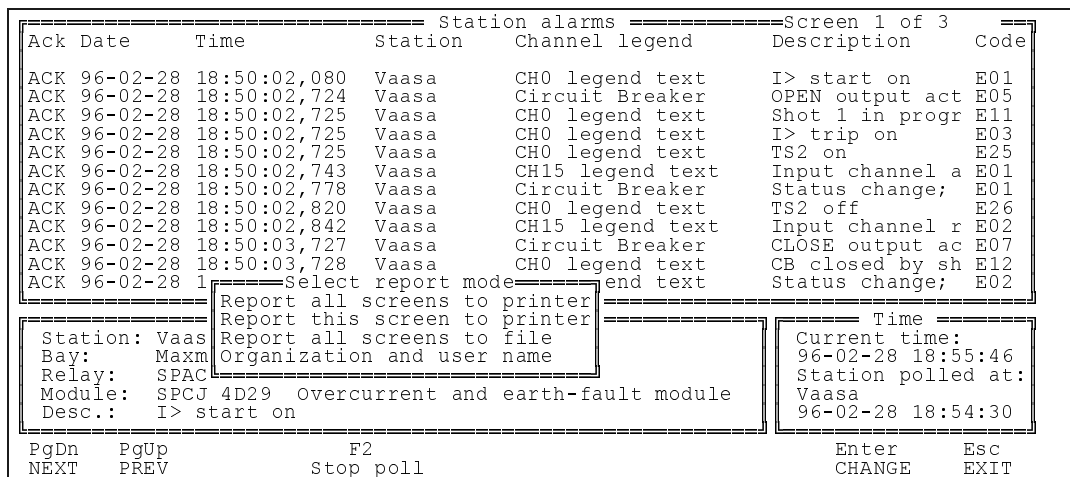


Fig. 3.2.3.1.A The 'F7 report' menu as it appears on the screen

In Fig. 3.2.1.A is the option 'organization and user name' enabling the user to give header names used for printing, (common for all SMS-BASE programs).

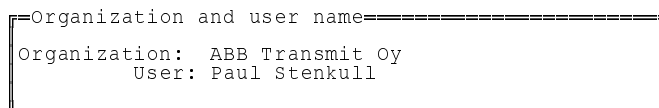


Fig. 3.2.3.1.B 'Organisation' and 'User' name are used in header when printing

An existing file is printed using the **'Print file'** function. Selecting this alternative opens the file window on the right of the screen from which the desired file can be selected.

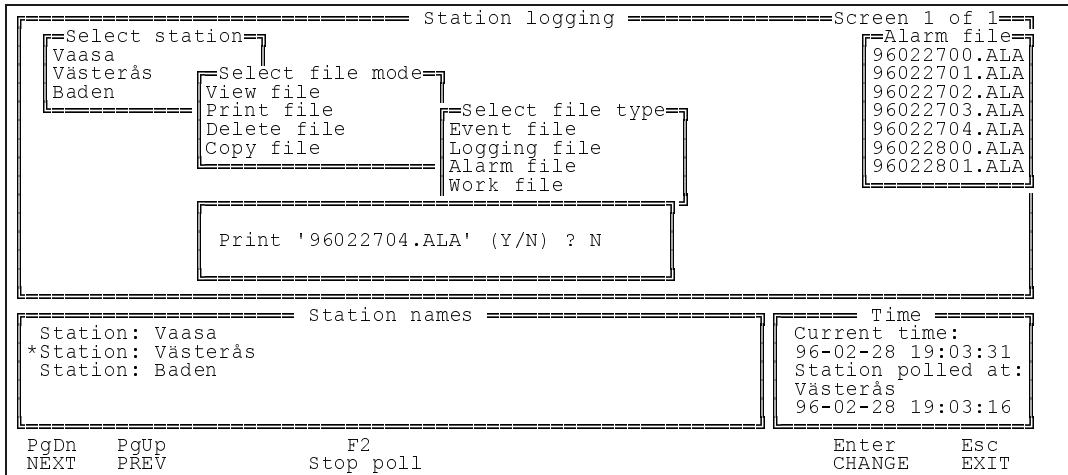


Fig. 3.2.3.1.C Confirm the file selected to be printed

The **'Delete file'** function for an 'Event file' requests the entry of the station password, (Fig. 3.2.3.1.D). Passwords are created and altered using SMS-BASE. Workfiles cannot be deleted.

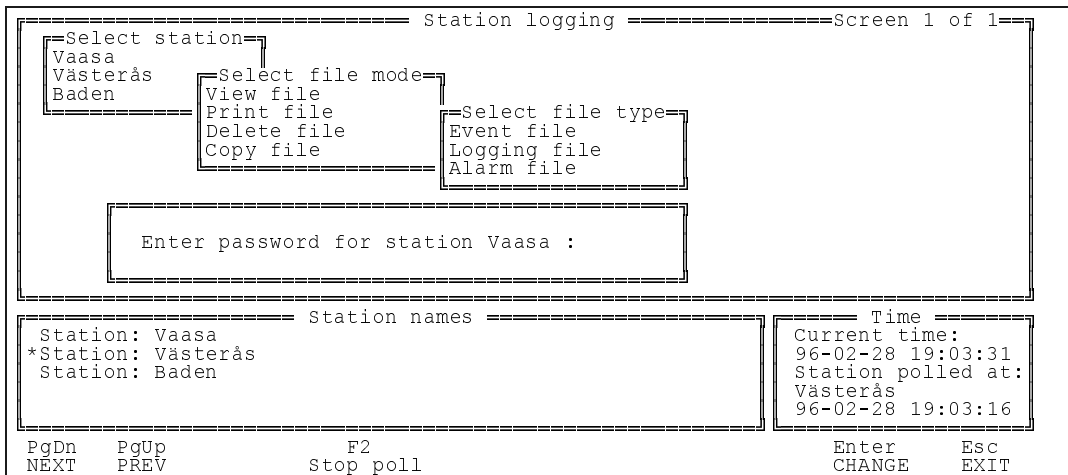


Fig. 3.2.3.1.D Window for entering the station password

Access to the deleting function is permitted after the station password is processed and accepted.

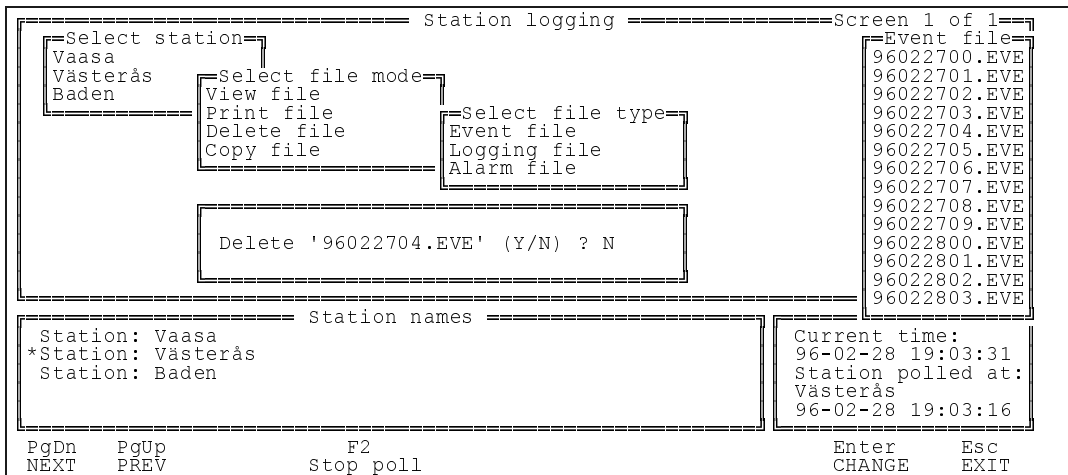


Fig. 3.2.3.1.E Confirm the deleting of selected file

Finally the 'Copy file' function enables the user copy file/-s to another location, e.g. for analysis by some other program or for back-up purposes.

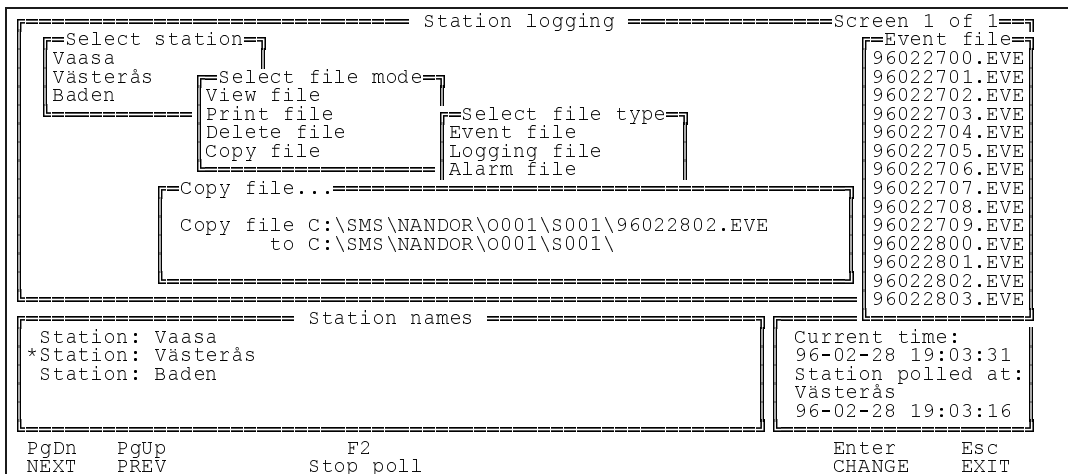


Fig. 3.2.3.1.F Confirm the copying of selected file or give another path

### 3.2.3.2 REPORT event files

Event files contain all the events that have occurred in the respective station. All the essential data describing the event are recorded. These include:

Event file line	**	96-02-28	12:51:22,009	Vaasa	xx	xx	xx	CH0 legend text	TS2 off	E26
- Alarm mark	**									
- Date		96-02-28								
- Time			12:51:22,009							
- Station name				Vaasa						
- Bay name					xx					
- Unit name						xx				
- Module name							xx			
- Channel description								CH0 legend text		
- Event description									TS2 off	
- Event code										E26

Fig. 3.2.3.2.A REPORT event file information

The structure of an event file opened using the REPORT file handling function is shown in Fig. 3.2.3.2.B. The bay, unit and module names are printed in the 'Station names' window. The full form of the description defined by the user is also printed in this window instead of the short form in the 'Station events' window. The double asterisks at the beginning of the lines indicate that the corresponding event is configured as an alarm.

```

===== Station events =====Screen 1 of 1
Date      Time      Station  Channel legend  Description  Code
** 96-02-28 18:45:50,658 Vaasa      Circuit Breaker  CLOSE output ac E07
** 96-02-28 18:45:50,659 Vaasa      CH0 legend text  CB closed by sh E22
** 96-02-28 18:45:50,724 Vaasa      Circuit Breaker  Status change; E02

===== Station names =====
Station: Vaasa
Bay:      Maxmo
Relay:    SPAC 535 C1 Feeder terminal
Module:   SPTO 6D3 Control module
Desc.:    CB closed by shot 3

===== Time =====
Current time:
96-02-28 19:03:31
Station polled at:
Västerås
96-02-28 19:03:16

PgDn  PgUp      F2      F7      Enter  Esc
NEXT  PREV      Stop poll  Report  CHANGE EXIT
    
```

3.2.3.2.B The structure of an event file on the screen, viewed from 'F3 File' handling

### 3.2.3.3 REPORT log files

Log file line	96-02-28	12:56:36	Vaasa	xx	xx	xx	I1 - Measured current	24	I1	630.00 A
- Date	96-02-28									
- Time		12:56:36								
- Station name			Vaasa							
- Bay name				xx						
- Unit name					xx					
- Module name						xx				
- Parameter description							I1 - Measured current			
- Slave number								24		
- Parameter code									I1	
- Parameter value										630.00 A

Fig. 3.2.3.3.A REPORT log file information

The structure of a log file opened using the REPORT file handling function is shown in Fig. 3.2.3.3.B. The bay, unit and module names are printed in the 'Station names' window.

Station logging					Screen 4 of 5	
Date	Time	Description	Unit	Code	Value	
96-02-28	18:46:42	kWh value per pulse	99	S3	150.00	kWh
96-02-28	18:46:42	Active energy (kWh)	99	V8	0.00	
96-02-28	18:46:42	Tot. number of AR cycl.	99	V20	2.00	
96-02-28	18:46:42	I1 - Measured current on	14	I1	78.00	A
96-02-28	18:46:42	I2 - Measured current on	14	I2	84.00	A
96-02-28	18:46:42	I3 - Measured current on	14	I3	84.00	A
96-02-28	18:46:42	I4 - Measured neutral cu	14	I4	0.00	A
96-02-28	18:46:42	I1 - Measured neutral vo	15	I1	16800.00	V
96-02-28	18:46:42	I2 - Measured neutral cur	15	I2	7.00	A
96-02-28	18:46:42	I3 - Measured value Io c	15	I3	0.00	A
96-02-28	18:46:42	I1 - Measured value of t	2	I1	0.00	V
96-02-28	18:46:42	I2 - Measured value of t	2	I2	0.00	V

Station names		Time
Station: Vaasa		Current time:
Bay: Maxmo		96-02-28 19:03:31
Relay: SPAC 535 C1 Feeder terminal		Station polled at:
Module: SPCJ 4D29 Overcurrent and earth-fault module		Västerås
Desc.: I2 - Measured current on phase L2		96-02-28 19:03:16

PgDn	PgUp	F2	F7	Enter	Esc
NEXT	PREV	stop poll	Report	CHANGE	EXIT

Fig. 3.2.3.3.B REPORT log file window, viewed from 'F3 File' handling

### 3.2.3.4 REPORT alarm files

The structure of an alarm file is almost the same as that of an event file with the exception of the first field which shows an 'ACK' or ' '. An 'ACK' in this field indicates that the corresponding alarm has been acknowledged by the REPORT user.

Alarm file line	ACK	96-02-28	12:39:16,120	Vaasa	xx	xx	xx	Circuit breaker 2	Close	E02
- Acknowledge mark	<b>ACK</b>									
- Date		<b>96-02-28</b>								
- Time			<b>12:39:16,120</b>							
- Station name				<b>Vaasa</b>						
- Bay name					<b>xx</b>					
- Unit name						<b>xx</b>				
- Module name							<b>xx</b>			
- Channel description								<b>Circuit breaker 2</b>		
- Event description									<b>Close</b>	
- Event code										<b>E02</b>

Fig. 3.2.3.4.A REPORT alarm file information

The structure of an alarm file opened using the REPORT file handling function is shown in Fig. 3.2.3.4.B. The bay, unit and module names are printed in the 'Station names' window. The full form of the description defined by the user is also printed in this window instead of the short form in the 'Station events' window. The 'ACK' at the beginning of the line indicates that the corresponding alarm has been acknowledged.

Station alarms					Screen 2 of 3	
Ack	Date	Time	Station	Channel legend	Description	Code
ACK	96-02-28	18:50:03,827	Vaasa	CH0 legend text	I> start on	E01
ACK	96-02-28	18:50:04,478	Vaasa	CH0 legend text	I> trip on	E03
ACK	96-02-28	18:50:04,483	Vaasa	CH0 legend text	TS2 on	E25
ACK	96-02-28	18:50:04,487	Vaasa	Circuit Breaker	OPEN output act	E05
ACK	96-02-28	18:50:04,488	Vaasa	CH0 legend text	Shot 2 in progr	E16
ACK	96-02-28	18:50:04,503	Vaasa	CH15 legend text	Input channel a	E01
ACK	96-02-28	18:50:04,539	Vaasa	Circuit Breaker	Status change;	E01
ACK	96-02-28	18:50:04,563	Vaasa	CH0 legend text	TS2 off	E26
ACK	96-02-28	18:50:04,584	Vaasa	CH15 legend text	Input channel r	E02
ACK	96-02-28	18:50:07,480	Vaasa	Circuit Breaker	CLOSE output ac	E07
ACK	96-02-28	18:50:07,481	Vaasa	CH0 legend text	CB closed by sh	E17
ACK	96-02-28	18:50:07,552	Vaasa	Circuit Breaker	Status change;	E02

Station names		Time
Station: Vaasa		Current time:
Bay: Maxmo		96-02-28 19:03:31
Relay: SPAC 535 C1 Feeder terminal		Station polled at:
Module: SPTO 6D3 Control module		Västerås
Desc.: CLOSE output activated		96-02-28 19:03:16

PgDn	PgUp	F2	F7	Enter	Esc
NEXT	PREV	Stop poll	Report	CHANGE	EXIT

Fig. 3.2.3.4.B REPORT alarm file window, viewed from 'F3 File' handling

### 3.2.3.5 REPORT work files

REPORT saves all the polled data in files called 'workfiles'. (Except for LOGGINGS, where it has to be parametrised in the 'REPORT station configuration' by setting 'Create work file' to 'Yes'). These workfiles are transformed to the standard file format whenever an automatic, ('Create reports') or manual save, takes place. The only difference between the formats is the names of the files and that workfiles are filled with more data until the files are emptied to corresponding \*.ALA, \*.EVE or \*.LOG files. The standard file format has always the same syntax:

- <YEAR,MONTH,DAY,NUMBER>,<TYPE> e.g. 931122.EVN

The names of the work files are:

- EVEWORK.TMP for events
- ALAWORK.TMP for alarms
- LOGWORK.TMP for logs

Station logging			Screen 1 of 1	
Select station	Select file mode	Select file type	Work file	
Vaasa	View file	Event file	EVEWORK.TMP	
Västerås	Print file	Logging file	ALAWORK.TMP	
Baden	Delete file	Alarm file	LOGWORK.TMP	
	Copy file	Work file		

Station names		Time
Station: Vaasa		Current time:
*Station: Västerås		96-02-28 19:03:31
Station: Baden		Station polled at:
		Västerås
		96-02-28 19:03:16

PgDn	PgUp	F2	Enter	Esc
NEXT	PREV	Stop poll	CHANGE	EXIT

Fig. 3.2.3.5.A REPORT work files

The only way of emptying a workfile is to report a workfile to corresponding \*.ALA, \*.EVE or \*.LOG file. A workfile cannot be deleted. Deleting has to be done by deleting the file in \*.ALA, \*.EVE or \*.LOG file format.

## 4 REPORT PRINTOUTS

REPORT printouts are transferred to the printer configured as the standard printer for SMS-BASE. The printed versions of the lists are the same as those on the screen, (Fig. 4.A).

```

Event report:
                                                    Date: 96-02-28
                                                    Time: 18:52:19

Station: Vaasa
# ABB Transmit Oy
# Paul Stenkull
# Report type: AUTOMATIC

** 96-02-28 18:50:02,080 CH0 legend text I> start on
** 96-02-28 18:50:02,724 Circuit Breaker OPEN output activated
** 96-02-28 18:50:02,725 CH0 legend text Shot 1 in progress
** 96-02-28 18:50:02,725 CH0 legend text I> trip on
** 96-02-28 18:50:02,725 CH0 legend text TS2 on
** 96-02-28 18:50:02,743 CH15 legend text Input channel activated
** 96-02-28 18:50:02,778 Circuit Breaker Status change; xx-->10 (open)
** 96-02-28 18:50:02,820 CH0 legend text TS2 off
** 96-02-28 18:50:02,842 CH15 legend text Input channel reset
** 96-02-28 18:50:03,727 Circuit Breaker CLOSE output activated
** 96-02-28 18:50:03,728 CH0 legend text CB closed by shot 1
** 96-02-28 18:50:03,799 Circuit Breaker Status change; xx-->01 (close)

```

Fig. 4.A Printout of a REPORT event list. All events marked with two \*\* are also configured as alarms.

The following information is included in the header of the printout:

Report type	Event report
Date	96-02-28
Time	18:52:19
Station	Vaasa
Organisation	ABB Transmit Oy
User name	Paul Stenkull
Report type	AUTOMATIC

The organisation and user names can be defined when using either SMS-BASE or REPORT, Fig 3.2.3.1.B. The report type is set separately for alarms, events and loggings, (section 3.1.2).

The SMS-BASE menu 'SETUP' contains two settings for the printer: 'Printer form lines' and 'Printer port'. Printerform lines defines how many lines there will be used when printing, default is 62 lines. A4 size paper has space for a total of 70 lines, 11 inch paper 66 lines and 12 inch paper 72 lines, (depending on font size). Default printer port is LPT1. Remember to save changes by 'SETUP'/'Save setup' !

Printing can be done in 'Linefeed' or 'Formfeed' mode. 'Formfeed' is after each printing feeding the paper to the end, or if long reports first filling the papers with as many lines as specified in 'Printer form lines' before feeding. The 'Linefeed' is also giving a formfeed, but first when the amount of lines specified in 'Printer form lines' are used. This enables several short reports on the same paper, (mainly useful for matrix printers). The printing header is always printed, in order to provide with information about actual report printed.

'Formfeed' is the option recommended with laser, because the data to print remains in the buffer until a 'Formfeed' is given. The operator can, though, with most laser printer see that the 'DATA' or 'READY' led is blinking and can then manually print the buffer. If 'Linefeed' is used is, however, a formfeed is given after the amount of lines in the SMS-BASE menu 'SETUP'/'Printer form lines' are "filled-up" with data. This formfeed will then print the laser buffer, but this assumes that the printer isn't used for other printouts, because by discontinuing REPORT and printing something else in-between is the laser buffer printed.

Refer to the section 3.1.2 'Configuring REPORT stations for details of 'Printing format', ('Linefeed'/'Formfeed' options), and 'Create reports' and 'Reporting method'.

## **5 ANALYSING REPORT FILES IN OTHER PROGRAMS**

The REPORT alarm, event and log files are all standard text files which can be accessed by other programs such as EXCEL or WORD for WINDOWS. All the text fields in the REPORT files are separated by tabs and this enables, for example, diagrams and trends to be plotted from the data in the log files.

## 6 RUNNING REPORT IN STAND-ALONE MODE

REPORT is usually started within SMS-BASE by the <F4> REPORT button on 'Organisation' level, but can also be started in stand-alone mode or automatically; either directly from the DOS prompt or by adding command lines to the AUTOEXEC.BAT file, (which means that when the operator turns on the PC, will the REPORT program start without further measures).

The advantage with the automatic restart is e.g. for an unmanned SMS 010 station if an power failure occurs. An automatic restart of REPORT will right away start the polling of the stations for events, and no waiting for an operator to start the system is required. However might the events be lost from the modules if there is a power supply failure, but the SRIO 500/1000 M and SACO 100 M have battery backup for the event buffers.

If scheduler programs are defined in the SCHEDULER file, will these programs, e.g. DR-COM, also be operating by an automatic REPORT restart or stand-alone start.

### Case 1:

The corresponding lines to be added at the end of the AUTOEXEC.BAT file are:

```
CD\SMS\REPORT
SPAREP C:\SMS\BASE\GLOBAL.CNF
CD\
```

This instructs the PC to run REPORT every time it is switched on.

### Case 2:

Running from the DOS command line:

```
C:\SMS\REPORT\SPAREP C:\SMS\BASE\GLOBAL.CNF
```

## 7 RUNNING OF SCHEDULER PROGRAMS FROM REPORT

### 7.1 General

REPORT is capable of automatically starting up, up to 10 predefined, SCHEDULER programs from the ongoing REPORT session. This will be done periodically according to the time intervals given for each program. The programs started will then fulfil their functions and after the tasks are completed or manually interrupted return to the running of the REPORT program. There are no limits for the amount of these cycles. These scheduler programs should, however, be "self-finishing".

NOTE ! This special feature can be obtained only from REPORT, other SMS 010 programs do not offer this kind of functionality.

### 7.2 Background and implementation

Since SMS 010 now have two programs, REPORT and DR-COM, that will take actions according to defined time intervals, the demand of utilising both programs similarly in the same PC has occurred.

This means that you can configure your SMS-BASE application for both REPORT and DR-COM to work side by side, by adding stations for both of them and editing the SPAREP.SCH file. Like in example Fig. 7.4.A, where the DR-COM program will be started once every half an hour.

### 7.3 Operating principles

When the REPORT program is started, it will operate according to the time intervals given in the REPORT STATION configuration, but it will also examine the SPAREP.SCH file for scheduler programs to be run. The REPORT program will start the scheduler programs if the time to start it has elapsed or even has exceeded the time interval for it to start.

This scheduler programs will continue its operation until it is finished or interrupted and then returns back to REPORT. The next running of the REPORT program might be delayed if the time intervals are set too tight, e.g. if DR-COM has a lot of registrations to upload and will need more time than predicted.

The running of the scheduler programs defined in SPAREP.SCH can/will be inhibited by following measures:

- |                    |   |
|--------------------|---|
| <u>Temporarily</u> | <ul style="list-style-type: none"> <li>a) By pressing &lt;Escape&gt; when the SCHEDULER window appears in REPORT</li> <li>b) By the <b>F1 Help</b> function in REPORT</li> <li>c) By the <b>F2 Stop poll</b> function in REPORT</li> <li>d) By the <b>F3 File</b> function in REPORT</li> </ul> |
| <u>Permanently</u> | <ul style="list-style-type: none"> <li>e) By editing the SPAREP.SCH file</li> </ul>   |

## 7.4 Configuration

The configuration of the SCHEDULER programs to be run is done in a file named SPAREP.SCH, located in the C:\SMS\REPORT\ directory, (SMS is the default directory, check with your installation for the proper path). This configuration file can be edited by any DOS editor, (e.g. C:\DOS\EDIT.COM).

Please note following when editing the SPAREP.SCH:

- Maximum ten programs can be given
- Give the path for the program to start, it is not necessary if the file is located in the ..\BASE\SUPPORT\ directory
- Use one row for each program, REPORT neglects empty rows
- Maximum 5 parameters can be given for each program
- The parameters should be separated with the "," mark
- The program should finish its operation automatically
- The # mark is used only for remarks and comments and should be omitted
- Time is always expressed in minutes, for instance 1 ½ hour is written as 90 (minutes)
- SPAREP.SCH should always be located in the ..\REPORT\ directory

```
# SPAREP.SCH          06.06.1995
#
# The Schedule configuration file
#
# This file specifies programs you wish to run at specified intervals from
# the REPORT program. This SPAREP.SCH file must always be located in
# the ..\REPORT\ directory.
#
# The "#" mark should not be used, because it is used for remarks only.
#
# Maximum ten programs, each on its own line, and five parameters per
# program is allowed. The parameters should be separated by "," marks.
#
# The first column specifies how often you want the program to be started
# (in MINUTES !). If you do not want to start the program, set the value,
# (time), to zero.
# The second column specifies the program you want to run, and following
# columns contains the parameters.
#
# If your program is located in the default ..\BASE\SUPPORT\ directory it
# is not necessary to give the path, else give path for program.
#
# The programs should be "self-finishing", i.e. automatically return to REPORT
#
# Format: time interval, program name,parameter 1,parameter 2,...,parameter 5
30,DRCOM.EXE,-r
```

Fig. 7.4.A The file SPAREP.SCH. The DR-COM program will be started every thirtieth minute.

**NOTE !**

The example in Fig 7.4.A is " 30,DRCOM.EXE,-r ".The DR-COM program will be started every thirtieth minute, but the -r parameter will force the DR-COM program to check the time setting in the DR-COM station. If the time settings differ, e.g. the DR-COM station has 60 minutes as interval and the SPAREP.SCH interval is 30 minutes, the check will be done every thirtieth minute, but the uploading of recordings starts when the 60 minutes interval has elapsed.

The handling and evaluation of the recordings has normally to be done by starting DR-COM outside REPORT, even though the collecting of recordings already is performed within the REPORT session.

Regarding DR-COM is more information about possible start-up switches available given in the DR-COM manual.

```

===== Station logging =====Screen 1 of 1
-----SCHEDULE-----
The Schedule will start specified program. Press
'Esc' if you want to cancel.

Schedule file : ..\REPORT\SPAREP.SCH

Program : C:\SMS\BASE\SUPPORT\DRCOM.EXE -r c:\sms
\base\global.cnf

*Station: Vaa
Station: Västerås
Station: Baden

Time
nt time:
96-02-28 22:14:52
Station polled at:
Vaasa
96-02-28 22:09:37

PgDn PgUp F1 F2 F3 Enter Esc
NEXT PREV Help Stop poll File CHANGE EXIT

```

Fig 7.4.B The SCHEDULER file is starting DR-COM

In Fig. 7.4.B is no time interval at all given and the full path for the DR-COM program given. When no time interval is given will the program start the program in the SCHEDULER file after a polling of a REPORT station is done. If several REPORT stations are to be polled at the same time will this be done as normal, but after the stations are polled will the SCHEDULER file be activated. The eventual alarms from a station will not be shown until the SCHEDULER file is interrupted or finished. This will of course cause a delay, if the SCHEDULER programs are needing a lot of time for the uploading.

**Remarks**

Normally aren't the programs started from the SCHEDULER file interfering with the running of REPORT, except from occupying time. If a SCHEDULER session is taking a long time, can the REPORT station polling be delayed, but a flag is set which informs REPORT that a polling is to be made if the time interval has elapsed. Another thing to notice is that audible alarms can be set off, but this depends on the program started by the scheduler function. The alarms are still listed and to be acknowledged, when returning to REPORT, but as said the audible alarm might be "acknowledged" by the programs in the SCHEDULER.

## A DIRECTORIES AND FILES IN REPORT

The REPORT software product is delivered on two 3½" high-density (1.44 Mbytes) floppy disks. The disks are numbered and named as follows:

NUMBER	DESCRIPTION
1	REPORT programs
2	Example application structure

Both floppy disks have the same directory structure or a part thereof and the same structure is retained when the system is installed. The files on the disks are packed, using the program 'pkzip', to minimise the number of installation disks. The contents of the disks are presented below as they appear when the disks are inserted into drive A: and are viewed using the program 'pkunzip':

A:\	Root directory of the system
\BASE\SUPPORT\	REPORT auxiliary programs
\BASE\MODULES\	Descriptions
REPORT\	Description of REPORT station
DATA-EX\	Application structure data

### A.1 Disk 1

Disk 1 contains:

A:\	
INSTALL.EXE	Installation program
INSTALL.LAN	Installation language texts
MUST.ZIP	Archived files
PKUNZIP.EXE	File expansion program
README	Disk information

The file 'MUST.ZIP' contains:

\REPORT\SPAREP.EXE	REPORT program main menu
SPAREP.LAN	REPORT language file
EVETBL.EXE	File for editing 'Event/Alarm tables'
LOGTBL.EXE	File for logging parameter selection
SPAREP.HLP	REPORT help file
SPAREP.SCH	The SCHEDULER file containing files for scheduler programs
MAIN-KEY.SUP	Function key definitions
RELEASE	Latest news
\SUPPORT\	
\MODULES\REPORT\	
STATION.CNF	REPORT station configuration
STATION.DEF	REPORT station configuration
STATION.SUP	REPORT station configuration

## A.2 Disk 2

Disk 2 contains an example application structure. The directory names consist of one letter and two digits. The REPORT user never sees the directory names but texts entered to identify each level of the structure.

The directory structure is as follows, nn representing a consecutive number:

A:\DATA-EX\	Root directory of data
Onnn\	'Organisations' in the application structure
Snnn\	'Stations' in an 'Organisation'
Onnn\	'Object/Bays' in a 'Station'
Unnn\	'Units' in 'Object/Bays'
Mnnn\	'Modules/Parts' in a 'Unit'

Disk 2 has the following contents:

A:\

INSTALL.EXE	Installation program
INSTALL.LAN	Installation language texts
README	Disk information
SPACOM.CNF	Texts for selection headline
CHOICES.DSC	Texts for the 'Organisation' menu

Onnn\	
CHOICES.DSC	Texts for the 'Station' menu

Snnn\	
PHN-STN.DAT	Communication settings
SPIN.CNF	Communication settings
CHOICES.DSC	Texts for the 'Object/Bay' menu

Onnn\	
CHOICES.DSC	Texts for the 'Unit' menu

Unnn\	
CHOICES.DSC	Modules/Parts texts
PACKAGE.PCK	Tranducer data i.e. CT and VT ratios

Mnnn\	
VALUES.VAL	Setting created using the editor
VALUES.INS	Acquired values of variables
SLAVE.DAT	Slave number, i.e. node number (existing and new number)
EVENT.DSC	Event configurations
CHANNEL.DSC	Channel configurations
LOGGING.DSC	Logging configurations

## A.3 Harddisk installation

The system installed on the hard disk has the same directory structure as the floppy disks. The default directory created for the system is:

C:\SMS\

## B REPORT SPECIFICATION

The REPORT system requirements and the typical data of REPORT functions are given in this Appendix.

### B.1 Hardware requirements

The hardware requirements which have to be fulfilled for REPORT to operate correctly are:

**- Relay end**

- PYRAMID unit with an SPA communication option.

**- Remote communication**

- A leased line equipped with modems or a telephone modem and automatic answering function at the station.
- SPA loop with a communication unit (SACO 148D4/SRIO 500 or SRIO 1000).
- A public telephone network according to CCITT.
- A telephone modem that which accepts "AT" commands at the PC end.

**- PC**

- PC IBM-AT or better but 100% compatible. No special configuration. No special accessories for controlling serial or parallel ports.
- Operating system DOS 3.3 or higher
- Main memory 450 kbytes available
- Hard disk 1.0 Mbytes for REPORT
- Serial port 1 to 4 for the modems (if more than 1 station has leased line, use max. 4 serial ports = 4 stations)
- Parallel port 1 for the printer, LPT1
- Floppy drive 1 3½" 1.44 Mbytes
- Code page 437, 860, 863 or 865

### B.2 Application structure and data memories

The application structure represents the actual physical structure of stations, bays and relays and enables the user to select relay and data memories of interest.

**- Storage of station data on disk**

- Storage of event, alarm and log data Possible
- Storage of station settings Possible

### B.3 Communication

**- Communication settings**

- Serial port COM1, COM2, COM3, COM4
- Baud rate 300, 1200, 2400, 4800, 9600 Baud
- Protocol SPA, SRIO

**- Data transmission time at 2400 Baud**

- Remote acquisition 0.15 s/variable
- Remote send 0.3 s/variable

**- Time to establish a modem link**

10 s typical

## C CONFIGURING SACO/SRIO FOR SMS 010 REPORT

In this appendix is **CR**, (Carriage Return), equal to **<Enter>**

### C.1 Configuring the UNIT list

#### C.1.1 SRIO UNIT command

*UNIT* <parameter>

<parameter> =	<i>D</i>	(Define.)
	<i>L</i>	(List.)
	<i>LP</i>	(List in page mode.)
	<i>H</i>	(Help.)
	<i>RA</i>	(Remove all.)

For the D parameter, the command displays the following header:

<bus>,<unit>,<type>,<event enable>

After the header, the user can enter one or more unit definitions. The definition can be used to change or remove an existing unit definition or to create a completely new definition.

The command is aborted, if only <Enter> is pressed instead of a definition.

The definition comprises:

<bus>	=	the number of serial interfaces to which the SPA bus is connected (1...5)
<unit>	=	the unit (or slave) number of the SPA bus unit or SPACOM unit (1...999)
<type>	=	the type of unit:
		0: digital alarm unit Type SACO 16D
		1: analogue alarm unit Type SACO 16A
		2: protective relay
		3: control unit (e.g. Type SPTO or SPOC)
		100: data communication controller Type SACO 100M
<event enable>	=	the event enable/disable/remove parameter:
		0: Unit is defined but not polled.
		1: Unit is polled for events.
		9: Unit is removed from the event poll list.

If the L parameter is given, all the units in the event poll list are listed according to the format:

<bus>,<unit>,<type>,<event enable>,<status>

If SRIO 1000M does not succeed in communicating with the unit, the <status> becomes:

"COMMUNICATION ERROR"

*Note 1: The program version for the SRIO 1000 must be V.8.21 or later.*

*Note 2: The priority (high or normal) can be set for each slave type using SYSPAR 25...SYSPAR 28. Usually the priority of the units of type 3 is high and priority of other types is low. This improves the system's response time, when the state of the breaker or disconnecter changes.*

*Note 3: The maximum recommended number of unit definitions is 100. (60 for reasonable fast response times)*

*Note 4: All the units (slaves) of the SPACOM system must have a unique unit number.*

Example:

The following adds unit 123, serial interface 2, to the event poll list.

```
-UNIT D
<bus>,<unit>,<type>,<event enable>
2,123,1,1
-
STORE F
```

## C.1.2 SACO UNIT Command

### UNIT CR

001.00:02:03

*Module address number*

001...099 = annunciator modules

001...254 = protective relay modules

*Number of channels*

00 = most common protective relay modules

16 = annunciator modules

*Module type*

00 = annunciator modules (SACO 16D\_)

01 = annunciator modules (SACO A)

02 = most common protective relay modules

*Status of the modules in the system*

00 = included in the system but not in the event reporting

01 = included in the system and in the event reporting

03 = module does not answer

99 = module removed from the system

The format of the printout is the same as the format of the UNIT instruction.

Example:            *UNIT L CR*

*001:16:00:01*

*002:16:00:01*

*003:16:00:01*

*101:00:02:03*

*102:00:02:01*

Annunciator modules 001, 002 and 003 and protective relay modules 101 and 102 belong to the system. Relay module 101 does not answer.

Example of how to store a new configuration:

Example:	Enter	Output
	<i>UNIT CR</i>	<i>000.00:00:00</i>
	<i>004.16:00:01 CR</i>	<i>004.16:00:01</i>
	<i>CR</i>	<i>-</i>
	<i>-STORE CR</i>	<i>STORING...</i>

An annunciator module with the number 004 has been added to the system and also included in the reporting system.

## C.2 Configuring the OUTPUT INTERFACE

### C.2.1 SRIO SETUP command

On the **SRIO** unit the **SETUP** command is used to display or change the communication parameters of the serial interfaces.

*SETUP* <parameter>

<parameter> =        *1...5* (serial interface number.)  
                          *H* (Help)

The command header and the current set-up parameters are displayed. Press <Enter> to leave the parameters unchanged. To change parameters, type the new parameter values separated by commas. If you only enter a few new values (for example only mode and baud rate), the remaining parameters remain unchanged. If you type invalid parameters, then the two question marks followed by the name of the parameter and the prompt are displayed. If the <cts> or <dcd> parameter is set, the CTS or DCD handshake is used. If <aut.lf> parameter is set, SRIO 1000M sends a LF character after every CR character. The <resend> parameter determines the maximum number of times a message is resent, if there was a transmission error.

Note: By switching the front panel switch 1 to the 'ON' position, the communication parameters of interface 4 (interface 1 in SRIO 1000M) are set to:

*terminal mode, 1200 b/s, 8 data bits, no parity, 1 stop bit.*

Example 1: The following changes the baud rate of serial interface 4 from 1200 to 9600.

*-SETUP 4*

*<baud>,<parity>,<sbits>,<cts>,<dcd>,<aut.lf>,<timeo>,<res>*

*...*

*...*

*1200,0,1,0,0,1,0,0*

*9600,0,1,0,0,1,0,0*

STORE F for storing

## C.2.2 SACO BAUD\_RATE Command

*BAUD RATE <terminal interface> CR*

On the **SACO** unit the communication parameters of the serial interfaces are changed using the <BAUD RATE> command.

*1200:0:1:0:1*

*Transfer rate*

0050 = 50 Bd  
 0110 = 110 Bd  
 0150 = 150 Bd  
 0300 = 300 Bd  
 1200 = 1200 Bd  
 2400 = 2400 Bd  
 4800 = 4800 Bd  
 9600 = 9600 Bd

*Parity values*

0 = even  
 1 = odd  
 2 = no parity

*Stop bit values*

1 = 1 stop bit  
 2 = 2 stop bits

*Auto line feed values*

0 = CDC does not generate a line feed character after the return character.  
 1 = CDC always generates a line feed character after the return character.

*Echo*

0 = without echo from SACO 100M  
 1 = with echo from SACO 100M

Entering BAUD\_RATE B determines that terminal interface B is to be programmed.

Example:	to be written	Output
	<i>-BAUD_RATE B CR</i>	<i>1200:2:1:1</i>
	<i>9600:2:1:1:1 CR</i>	<i>9600:2:1:1:1</i>
	<i>CR</i>	
	<i>STORE_BAUDRATE</i>	

### C.3 Configuring SRIO event date stamps

From SRIO 500 /1000 M version 9.1 is it possible to select whether date should be included or omitted from the events read from the SRIO event buffer. Setting of this parameter is useful only for REPORT v. 2.0. If the SYSPAR 32 is set to '0', i.e. not giving dates with the events, then will REPORT add the date taken from the PC.

Command is **SYSPAR 32**

#### SYSPAR 32

P32: Extended SACO100M event timestamp = 0

New value ? (0 = No, 1 = Yes)

**1**

-

STORE F

### C.4 Configuring SACO 100 M event date stamps

From versions 5.5 a special E version of SACO 100 M is available. By ordering this special for REPORT made E version the sending of date with the events to REPORT is enabled. However, the function of listing active alarms is removed in these E versions. Setting of this parameter is useful only for REPORT v. 2.0.

Setting of sending date or not is done from SET\_PRINTER, (use the membrane push buttons on the front of the SACO 100 M or remotely by a terminal emulator)

SET\_PRINTER

1:B:99:0:0

1:B:99:4:0

The fourth setting is the one to set for date stamps used when communicating to REPORT. The available alternatives are showed in table C.4.A.

	LOCAL REPORT	SMS 010 connection
Option		
0	Normal print style	Normal date stamp
1	IVO print style	Normal date stamp
2	Not used	Not used
3	Not used	Not used
4	Normal print style	Extended date stamp
5	IVO Print style	Extended date stamp

Fig. C.4.A The options for setting the date stamps for REPORT

## D SPA BUS AND DATA COMMUNICATION PROTOCOL

The largest SPA system operates in a master/slave mode with one master and 899 slaves connected to nodes around a ring bus. The bus hardware and the communication protocol are defined for the SPA system. The communications controller in an SMS 010 system including REPORT has addresses between 901 and 999.

Although no knowledge of the SPA concept is necessary when using SMS-BASE normally, a short presentation is included at this juncture to give the user an insight into what goes on behind the scenes while communication is in progress. A full description of the SPA concept is given in other documents available from ABB Transmit Oy, Relays & Network Control division.

The bus comprises essentially an optical fibre running in a loop from the master to each of the slaves in turn and back to the master. The bus is looped through each slave via a transparent optical/electrical/optical transceiver such that all the messages are available at the inputs of all the slaves. Each of the slaves are standing by and waiting for a message containing its own unique address.

It is always the master that initiates a dialogue with the slaves, addressing each one in turn. Only the slave which recognises its own address in the telegram from the master responds.

The communication protocol is based on ASCII characters. A character thus requires 7 Bits which together with a parity bit (EVEN) makes a total of 8 Bits.

Since the SPA bus is a ring, the telegram sent from the master returns immediately to the same and is after a slight delay followed by the reply from the slave concerned.

A simple telegram from the master has the following structure:

>	Start character, master signature
Slave number	The number of the addressed slave
Message type	E.g. R=read, W=write
Channel number	Channel = Module channel
Data category	E.g. I=input, O=output, F=identification etc.
Data number	Consecutive number
:	Delimiter
Data	Data
:	Delimiter
Checksum	2 characters
Carriage return	Stop character

A reply from a slave has the following structure:

Line feed	The character for a new line
<	Slave signature as a start character
Slave number	The number of the addressed slave
Message type	E.g. A=acknowledged, D=data
:	Delimiter
Data	Data
:	Delimiter
Checksum	2 characters
Carriage return	Stop character
Line feed	Stop character

The checksum may be replaced by XX if it is not calculated. A telegram containing no data only requires a colon ':'.

An example of a typical dialogue is the following initial identification of a slave. The slave is assumed to have 'slave number' 31:

<b>Master - &gt;31RF:XX</b>	No data, checksum unknown. The SPA identification F should prompt the relay type in reply.
<b>Slave - &lt;31D:SPCJ 4D29:6A</b>	Yes ! This is a SPCJ 4D29 module.

This dialogue can be used to check the communication with the terminal emulator or SPA terminal emulator, refer to SMS-BASE User's Guide for examples.

Each variable read or set via the SPA bus requires a dialogue. The master SMS-BASE requests or commands and the slave SPCJ 4D29 responds. Every variable transferred comprises the exchange of approximately 25 ASCII characters.

## E TROUBLE SHOOTING

### E.1 No stations to poll

The message “No stations to poll !” is given from REPORT when no stations are found at REPORT start-up. The reasons can be that no ‘REPORT station’ has been added to the application structure or has been done in a wrong way. Check with your application structure and locate your ‘REPORT station as an own ‘Object/Bay’, ‘Unit’ and ‘Module/part of Unit’.

The usual reason is, however, that the user hasn’t changed the station address in ‘REPORT station configuration’ from 899 to a valid address. Give the proper address of the SACO 100 M or SRIO 500/1000 M data communicator.

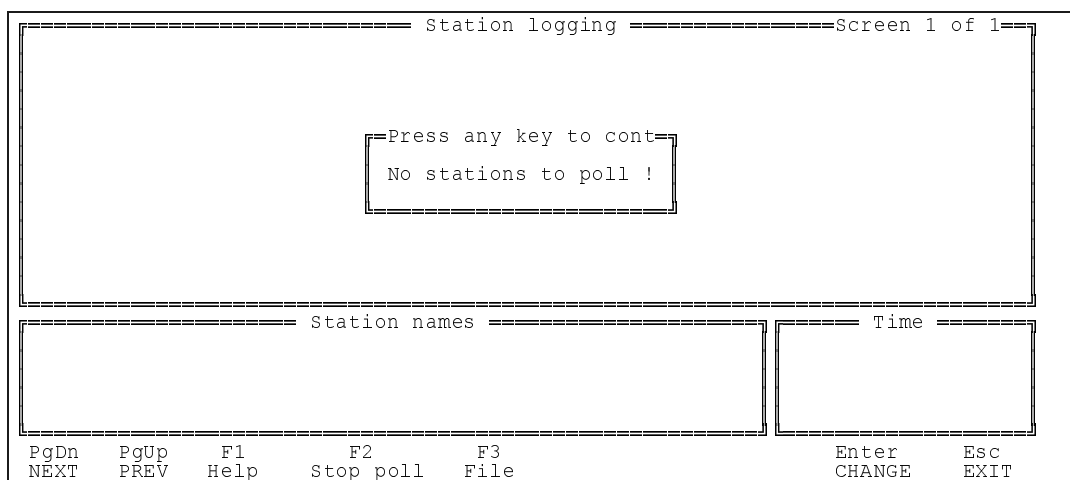


Fig. E.1.A No stations to poll message from REPORT

### E.2 No communication parameters

When you create an application structure by ‘UTILITIES’/‘Alter application structure’ it is possible to leave without creating communication parameters, although SMS-BASE v. 2.0 in an efficient way is encouraging the creating of communication parameters. The solution for creating communication parameters is to use ‘UTILITIES’/‘Alter application structure’ and create the communication parameter file SPIN.CNF at ‘Station’ level, (‘Select Object/Bay’ level), (Fig. 3.1.1.E).

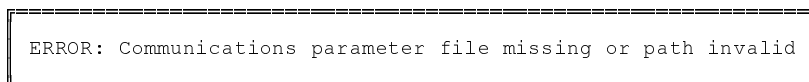


Fig E.2.A Communication parameter file SPIN.CNF is missing !

Another possibility is that the SPIN.CNF has been created on another level than the ‘Station’ level. <Alt>+<D> will delete the file if needed. Then recreate the communication file at the right location.

**Warning !** Do never delete the transformer settings file PACKAGE.PCK at the module level !

### E.3 Wrong communication parameters

Even if the application structure seem to be OK and the communication parameter file is existing, it could be possible that no connection to the data communicator is established. Check with the settings in your communication parameter file, 'Serial Port', 'Protocol', 'Baud rate', 'Parity' and 'Databits'. The SMS-BASE Terminal emulator, (refer to the SMS-BASE User's Guide), is useful when tracing communication problems.

```

===== Edit communication parameters =====
Phone no:      161707                161707
Connection:    Direct                Direct
Serial port:   COM1                  COM1
Protocol:      SPA                   SRIO
Baud rate:     9600                   1200
Parity:        EVEN                   NONE
Data bits:     7                      8
Echo:          IGNORE                 IGNORE
Handshake:     NONE                   NONE
Stopbits:     1                      1

```

Fig E.3.A The default settings used for SRIO showed to the right

If no communication from your data communicator is obtained by any method, then check with your cables, (SPA-ZP13 A\_ from PC direct to SACO 148D4 and SPA-ZC7 A\_ direct from PC to SRIO 500/1000 M).

### E.4 Error on starting program

The error message "Error on starting program !" can be displayed because of two reasons. The first one is that the REPORT program, (executable files), are removed or not installed at all. In this case (re)install your REPORT. The other possibility is that REPORT is started under Windows 3.1. The solution is then to quit Windows and start SMS-BASE and REPORT from the DOS prompt.

```

SELECT          UTILITIES          ABOUT          SETUP
Select Organization
ABB Select Station
  Vaasa
  Västerås
  Baden

Organiz:  ABB Network Partner

Error on starting program!
                                F4          F5
                                REPORT      DR-COM
                                Enter      Esc
                                SELECT     EXIT

```

Fig. E.4.A Error on starting the REPORT program

### E.5 Nothing reported

If the data communicators SACO 100 M or SRIO 500/1000 M aren't configured correctly or the UNIT list is missing or containing wrong slaves, then can no REPORT functions be performed. The UNIT list is very essential because the data communicators will not communicate with any unknown module. If there are more control systems used on the SRIO, but these control systems are turned off, could the event buffer in SRIO be suffering from overflow and the buffer is frozen, hence not reporting events until the present buffer is emptied.