

System 8500

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# Programmers Guide

MPS 8500  
Standard Commands



**System 8500  
Programmers Guide**

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## **1. Introduction**

The System 8500 can be remotely controlled through a serial line. Please refer to the "System 8500 User's Manual" for configuring the serial line of the Control module.

The communication protocol is based upon plain ASCII characters where each command or reply is delimited by a "Carriage Return" <CR> character. However replies have a "Line Feed" <LF> character added before the <CR> for a friendlier display when using a terminal.

This document describes the standard commands of the System 8500.

## 2. Command summary

Following are the commands for the standard software listed in alphabetic order.

Please see the SW appendix for detail explanation of every command.

Not all commands are available in all SW versions. Please see in the specific command description, from which SW version the given command is valid.

### STANDARD COMMANDS

AD X	Read value from an ADC channel	PO +/-	Change to Normal polarity
ADR	Read the address of the MPS.	PRINT	Reads internal user information about the MPS
ADR XXX	Write an address to a MPS.		
ADRS	Read the address of the MPS.	R(x)	Read slew DAC 1 or 2
ADRS XXX	Write an address to a MPS with the address number as response.	R3	Read slew DAC 1 absolute
ASW	Enters answer mode.	RA	Read the set value.
			(Preferred new command: DA 0)
CLOCK	Reads the current time	REM	Change to remote control.
CLOCK XX,XX,XX,XX,XX,XXXX	Sets the clock.	RLOCK.	Remote line only
		RS	Reset interlocks.
CMD	Read current control mode.	S1	Read the internal status.
CMDSTATE	Read current control state.	S1H	Read internal status in HEX format
DA XXXXXX	Writes a value to an Digital to Analog converter. (Alternative to W(x) or WA command)	S1FIRST	Read the interlock first catch status.
DA 0,xxxxxx,y	Writes a value xxxxxx to the Digital to Analog converter 0, which is used for the current setting, through HW register 0 or 1 given by the value y.	S1FIRSTH	Read the interlock first catch status in HEX format
ERRC	Coded error message.	S1TIME	Read the time when the first interlock occurred.
ERRT	Text string error message.	S3	Read the internal extended status.
F	Main Power OFF	S3H	Read internal extended status in HEX format
F1	Auxiliary-1 output line OFF	SOFF	Slow OFF
"F2"	Auxiliary-2 output line OFF		Off
GOFF	Global OFF		command followed by an
	Same as N1 command		WA
ID	User configurable identification text field		000000
IEEE	Used to set IEEE interface communication if present	TD	Test DAC function
LALL	Listen ALL.	TYPE	AD type in use
LOC	Change to Local Control	UNLOCK	Un-lock the MPS
LOCK	Lock the MPS in Local Control.	VER	Reads the software version
N	Main Power ON	W(x)	Write slew DAC 1 or 2
N1	Auxiliary-1 output line ON.	W3	Write slew DAC 1 absolute
"N2"	Auxiliary-2 output line ON.	WA XXXXXX	Write a set value (Set output current). (Preferred new command: "DA 0,xxxxxx")
NASW	No answer mode.		
NERR	No error message		
PO	Polarity status		

- X is a number from 0 to 9 and Commands in quotation marks are optional.

Esc SET UP COMMANDS

Esc<AD	Configures the AD converter attainling and routing (Output reading adjustment or output reading in % or Amps)	Esc<DA	Configures The Digital to Analog converters. (Slew rate setting in A/sec or set value in Amps)
Esc<ADR.	Configures the communication address setting (in RS422 mode)	Esc<DASET	Auto Configures the scaling (gain) and Offset for a DA converter channel.
Esc<ADSET	Auto Configures the scaling "gain" and Offset for an AD converter channel.	Esc<ID	Sets User configurable identification text field
Esc<AUX	Configures the special options.	Esc<INTERLOCK	Configures which input that has to be latched. Other inputs will act as status inputs.
Esc<AUX2	Configures the special options.	Esc<LINE	Configures the protocol for the serial lines.
Esc<BAUD	Configures the Baud rate for the serial lines.	Esc<PPULS	Configures the ON pulse with
Esc<COLDBOOT	Configures the power up state (Wake up position)	Esc<PPULS1	Configures the Auxiliary output line ON pulse with.
Esc<CPURESET	Resets the CPU		

### 3. Programming:

The power supply communication protocol is build upon plain ASCII characters where each command or reply is delimited by a "Carriage Return" <CR> character. However replies has a "Line Feed" <LF> character added before the <CR> for a friendlier display when using a terminal. <LF> characters on commands will be ignored.

Hint. Actually the protocol allows full control of the power supply from a "dumb" terminal. In case of a service- debug- situation a terminal can be used to tap the communication transfer by a simple parallel connection.

Hint: When debugging, the "ERRT" command enables error messages to be given as a read able text.

More commands may be transmitted in a chain but each single command must be trailed individually with the delimiter character <CR>. The power supply is able to execute up to 200 commands a second depending of the complexity of each command.

Note. Issuing short commands faster than the time to transmit the answers e.g. "S1" will overload the internal transmit buffer regardless of the selected baud rate.

All commands can be divided into three sections.

- a) Directive commands. E.g. the "N" command that turns the power supply ON
- b) Status commands. E.g. the "S1" that returns the power supply status
- c) Set up commands. E.g. the "ESC"<PPULS 5 that sets the ON pulse to 0.5 seconds

Status commands delivers always a reply whereas directive- and setup- commands only responds with an error message if the command couldn't be understood or if the given parameters are incorrect. From SW version SCS110 it is possible to set the power supply to always generate an answer (See 'esc'LINE setup for SW version SCS110.). This feature is very useful when using RS485 protocol.

Hint. When using the "Always Answer" mode ('OK' respond From SW version SCS110) a re-transmission of the last given command can be performed if no answer or an error message is received. The System 8500 respond time is around 5ms after receiving the last bit of the termination character.

Answer scheme if set to "Always Answer" mode.

- |                       |         |   |
|-----------------------|---------|---|
| a) Directive commands | Answer: | - No answer<br>- ERROR message<br>- OK if set to always answer mode (From SW ver. SCS110) |
| b) Status commands    | Answer: | - Data<br>- ERROR message   |
| c) Set up commands.   | Answer: | - No answer<br>- ERROR message<br>- OK if set to always answer mode (From SW ver. SCS110) |

Below is an example written in BASIC on how to turn ON the power supply and read the status with and without acceptance answer:

Turning the power supply ON and reading/evaluating the status with always answer disabled.

```
LPRINT "N"+CHR$(13)           :REM Turns the power supply on
LPRINT "S1"                   :REM Issues the status command
LINPUT S1$                     :REM Read the MPS reply
IF LEFT$(S1$,1) = CHR$(?)     :REM Is it an error message reply?
  GOTO ERROR_HANDLING        :REM Yes then go to error module
ENDIF
J=1
DO                               :REM evaluate status reply
  IF MID$(S1$,J,1)="!"
    GOSUB STATUS(J)_ACTIVE    :REM set this status bit active
  ELSE
    GOSUB STATUS(J)_ACTIVE    :REM set this status bit inactive
  ENDIF
  J=J+1
UNTIL J=24
```

Turning the power supply ON with always answer enabled

```
J=0 :ERROR$=""
DO
  J=J+1                          :REM Counter for maximum attempts
  LPRINT "N"+CHR$(13)           :REM Turns the power supply on
  LINPUT RE$                     :REM Read the MPS reply with 0.1 Sec. time out
  IF LEFT$(RE$,1) = CHR$(?)     :REM Is it an error reply?
    ERROR$=RE$                  :REM Mark the error code
  ELSEIF RE$="OK"                :REM Is it a good reply
    BRAKE                       :REM then exit DO loop
  ELSEIF J=6                    :REM Try only six times
    IF LEFT$(ERROR$,1) = CHR$(?) :REM Was it error reply?
      GOTO ERROR_HANDLING      :REM Yes then go to error module
    ELSEIF
      GOTO NO_COMMUNICATION    :REM Yes then go to "No answer" error module
    ENDIF
  ENDIF
UNTIL -1                          :REM loop endless
```

Ps. An ERROR message includes a "?BELL". (Bell = ASCII 7.)

## 4. Command descriptions

On the next pages each command is described in detail.

## AD - AD X

**Command:** AD'sp'ch'cr'  
ch: ASCII digit 0 to 16

**Example:** Command: AD 0  
Syntax: AD'sp'0'cr'

**Answer:** 'val'lf'cr'  
ch: ASCII digit 0 to 16  
val: ch 0 to 5, 7 and 9, and 10 to 15 ASCII digit 000 to 999  
ch 6 ASCII +/-00 to +/-99  
ch 8 ASCII 00000 to 99999  
ch 16 ASCII 00000 to 99999  
(If a signed response is chosen will a sign be added to the front of the value. See also 'ESC'< AD command for further information.)  
**or** Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR, means a missing space between the command and parameter or wrong syntax.

### Description:

The AD command is used to read the different Analog to Digital converters. The AD channels and their response are described on the next column.

AD channel 6 differs from the other by containing a sign, plus or minus, before the value.

**Note:** It is possible to change the number of digits and the sign representation for each channel in the "Esc<" setup command. If an M-Panel is attached, please do not change the number of digits for the first 9 channels.

Over flow will be limited to a reading of all digits equal to 9. Under flow to 0 if unsigned format is used.

Nothing else is affected. AD continued

CHANNEL	VALUE	UNITS	RESPONSE
0	Output current	(I/In)*100	"SDDD"
1	Tesla	T*100	"DDD"
2	Output Voltage	(V/Vn)*100	"SDDD"
3	Internal +15V sup.	V*10	"DDD"
4	Internal -15V sup.	Num.(V*10)	"DDD"
5	Internal +5V sup.	V*10	"DDD"
6	Delta temperature	(DEg.OO*10)	"SDD"
7	Trans. Bank Vce	V	"DDD"
8	Optional Iout (16 Bit)	(I/In)*99999	"SDDDDD"
9	Aux. Iout (Ctr. Panel)	(I/In)*120	"DDD"
10	Aux. Iout (Ctr. Panel)	(I/In)*12000	"DDDDD"
11	Iout Optional	(I/In)*100	"DDD"
12	Vout Optional	(V/Vn)*100	"DDD"
13	Water flow	(L/Min)*10	"DDD"
14	Free on plug P29 ( $\pm 1V$ )	(V)*100	"SDDD"
15	Free on plug P19 (10V)	(V)*10	"DDD"
16	Optional Iout (16 Bit)	(I/In)*99999	"SDDDDD"

Where D is a number from 0 to 9, and S is a sign character (either "", "+" or "-").

The UNITS of AD 0 and AD 2 can be in AMPS and VOLTS if bit 4 (leaver 5 on dip switch) is set to 0 in the Auxiliary setup. The scaling factor for these two channels must be adjusted accordingly.

Channel 8 & 10 has a built is running average filter with a time constant of several seconds for stable output reading.

Channel 16 is the same as channel 8 but unfiltered Update rate is 60 to 300ms. but typically around 70ms.

## ADR - AdDRess (write)

**Command:** ADR address'cr'  
address: ASCII digits 00 to 255 in decimal notation.

**Example:** Command: ADR 23  
Syntax: ADR 23'cr'

**Answer:** No answer, except errors  
or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.  
DATA CONTENTS means that parameter format is incorrect or a non-digit character is found in the data field or the parameter is outside the specification.

### **Description:**

The ADR command used to select an actual power supply( unit) working RS422 multi drop mode. The previously addressed unit is automatically de-selected.

Please note, ADR=0 and ADR=255 are interpreted as always addressed. That is it will respond to any command in the line.

There is only one exception using the ADR command due to the LALL mode. When all connected units are in LALL mode, an ADR command given after the LALL command will disable the LALL function.

Related commands: ADR (read)

Affected commands: LALL

## ADR - AdDRess (read)

**Command:** ADR'cr'

**Answer:** Address  
or Error message

**Example:** Command: ADR  
Syntax: ADR'cr'

Answer: address  
Syntax: address'lf'cr'

Address: ASCII digits 000 to 255 in decimal notation.

**Errors:** SYNTAX ERROR means wrong syntax.

### **Description:**

The ADR command is used to verify the address of the addressed power supply (unit). The command returns the address of the addressed unit.

There is only one exception to the ADR command due to the LALL mode. When all connected units are in LALL mode, an ADR command given after the LALL command will disable the LALL function. For the same reason, no answer will be generated, because the LALL mode has to be cancelled before any answer can be generated. In this case, if you want to know the address of the addressed unit, the ADR command has to be repeated.

In cases where no answer is given, even after the second ADR command, maybe a non-existing unit has been address or the actual unit-address has been switched off. In that case just address another unit to verify the communication line and then re-address to the "dead" address for test.

Related commands: ADR (write)

Affected commands: LALL

## ADRS - AdDRessSpecial (write)

From SW version SCC113

**Command:** ADR address'cr'

address: ASCII digits 00 to 255 in decimal notation.

**Example:** Command: ADRS 23  
Syntax: ADRS 23'cr'

**Answer:** Address of addressed unit or errors

**Errors:**

SYNTAX ERROR	means wrong syntax.
ILLEGAL COMMAND	means that line-in-command is wrong.
DATA CONTENTS	means that parameter format is incorrect or a non-digit character is found in the data field or the parameter is outside the specification.

### **Description:**

The ADRS command used to select an actual power supply( unit) working RS422 multi drop mode. The previously addressed unit is automatically de-selected.

The only difference between the ADR and the ADRS command is, that the ADRS command responds with the address of the new addressed unit instead of 'OK' or no answer at all. In other words, is the ADRS command a merge of the ADR(write) and the ADR(read) into one command.

Please note, ADRS=0 and ADRS=255 are interpreted as always addressed. That is it will respond to any command in the line.

There is only one exception using the ADRS command due to the LALL mode. When all connected units are in LALL mode, an ADRS command given after the LALL command will disable the LALL function.

Related commands: ADR, ADRS (read)

Affected commands: LALL

## ADRS - AdDRessSpecial (read)

From SW version SCC113

Command: ADRS'cr'

**Answer:** Address  
or Error message

**Example:** Command: ADRS  
Syntax: ADRS'cr'

Answer: address  
Syntax: address'lf'cr'

Address: ASCII digits 000 to 255 in decimal notation.

**Errors:** SYNTAX ERROR means wrong syntax.

### **Description:**

The ADRS command is exactly equal to the ADR command. Please refer to the ADR (read) description for further information.

Related commands: ADR; ADRS (write)

Affected commands: LALL

## ASW - AnSWer (remote line only)

**Command:** ASW'cr'

**Example:** Command: ASW  
Syntax: ASW'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is local-line

### **Description:**

The ASW command is used to switch the remote line into an auto-answer mode in which some setup commands can generate an answer. The ASW mode is suppressed when the unit is in LALL mode. Commands which will generate an answer are listed in the following: WA, PO+/-, W1, W2, W3.

Nothing else is affected.

Related commands: NASW

## CMD - CoMmanD line

**Command:** CMD'cr'

**Answer:** If line-in-command is remote line:  
REM

Syntax: 'sp'REM'lf''cr'

or If line-in-command is local line:  
LOC

Syntax: 'sp'LOC'lf''cr'

or Error message

**Example:** Command: CMD  
Syntax: CMD'cr'

Answer: REM  
Syntax: 'sp'REM'lf''cr'

**Errors:** SYNTAX ERROR means wrong syntax  
ILLEGAL COMMAND means that line-in-command is wrong

### **Description:**

The CMD command is used to return an answer about which line is the line-in-command (the line that may give commands, both channels can always read status). The command is used by the control panel to decide the status of the line-in-command indicator. From remote line it can be used to decide if anyone has changed the mode, (from the control panel). For example if an unexpected ILLEGAL COMMAND has been returned to a set command..

Nothing else is affected.

Related commands: CMDSTATE

## CLOCK - read

**Command:** CLOCK'cr'

**Answer:** hour,min,sec,day,month,year

Hour	00 - 23
Min	00 - 59
Day	01 - 31
Month	01 - 12
Year	2000 and up

**Example:** Command: CLOCK  
Syntax: CLOCK'cr'

**Answer:** 19,54,03,08,03,2000'lf'cr'

or Error message

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The CLOCK command returns the internal clock time.

Related commands: CLOCK write, S4TIME

## CLOCK - write

**Command:** CLOCK hh,mm,ss,dd,mm,yyyy'cr'  
hour,min,sec,day,month,year

**Example:** Command: CLOCK 19,54,03,08,03,2000  
Syntax: CLOCK'sp'19,54,03,08,03,2000'cr'

**Answer:** No answer, except errors

or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.  
DATA CONTENTS means that parameter format is incorrect or a non-digit character is found in the data field or parameters are outside the specification

### **Description:**

The CLOCK command is used to set the internal clock.

Related commands: CLOCK read, S4TIME

## CMDSTATE - CoMmanD line STATE

**Command:** CMDSTATE'cr'

**Answer:** If line-in-command is in remote:

REMOTE

Syntax: REMOTE'lf''cr'

or If line-in-command is in local and the command is given from the remote line:

Syntax: LOCAL'lf''cr'

or If line-in-command is in local and the command is given from the local line or LOCKed from remote line:

Syntax: LOCK'lf''cr'

or Error message

**Example:** Command: CMDSTATE  
Syntax: CMDSTATE'cr'

**Answer:** REMOTE  
Syntax: REMOTE'lf''cr'

**Errors:** SYNTAX ERROR means wrong syntax.

ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The CMDSTATE command is an extended command similar to CMD command. It is used to return answer about which line is the line-in-command. The answer is more detailed than in CMD and is constructed to be used between the controller and the IEEE-488 interface unit, during initializing.

Nothing else is affected.

Related commands: CMD

## DA - Read DAC

**Command:** DA'sp''chn','cr'

ch: Cannel number →

ch: 0 val: digits 000000 to 999999 in PPM. (RA)

ch: 1 val: digits 0 to 255. (R1)

ch: 2 val: digits 0 to 255. (R2)

ch: 3 val: digits 0 to 1550 (depends on the scaling factor). (R3)

**Example:** Command: DA 0  
Syntax: DA'sp'0'cr'

Means read value of DA channel 0 (Current setting channel)

**Answer:** 0'sp','val' Val  
< 000000 to ±999999>  
Depending on the DAC channel and scaling

**Errors:** SYNTAX ERROR, means a missing space between the command and the parameter or wrong syntax.

DATA CONTENTS means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.

### **Description:**

The Da read command is an new alternative to the RA, R1,R2 and R3. Commands. For a more detailed description on each DA channel, please refer to the appropriate Rx command.

DA 0 equals RA. - Sets output current in ppm

DA 1 equals R1 - Set Slew rate through 8 bit optional port (added HW)

DA 2 equals R2 - *Optional*

DA 3 equals R3 - Set Slew rate through 8 bit optional port scaled to mA/sec

DA 4 - Set Slew rate through 12 bit serial DAC (From SW version SCS110)

## DA - Write to DAC's

All SW versions

**Command:** DA'sp'ch','val'cr'

ch: 0 val:	digits 000000 to 999999	in PPM.	(WA)
ch: 1 val:	digits 0 to 255.		(W1)
ch: 2 val:	digits 0 to 255.		(W2)
ch: 3 val:	digits 0 to 1550 (depends on the scaling factor).		(W3)

!!!! Please note, that the DA value must always be entered using the trailing zero notation regardless of the WA setting.

**Example:** Command: DA 0,480  
 Syntax: DA'sp'0,480'cr'  
 Means a set value of 480 ppm

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:**

SYNTAX ERROR,	means a missing space between the command and the parameter or wrong syntax.
DATA CONTENTS,	means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.
ILLEGAL COMMAND	Indicates that you are in a wrong command mode. Change to REMote or LOCAl.
CHANGE IN PROGRESS	Indicates that the controller is in the middle of an internal sequence eg. a polar change. While this is running, it is a new DAC setup is not allowed.

## DA continued.

### **Description:**

The DA command is an new alternative to the WA, W1,W2 and W3. Commands. For a more detailed description on each DA channel, please refer to the appropriate Wx command.

DA 0 equals WA	- Sets output current in ppm
DA 1 equals W1	- Set Slew rate through 8 bit optional port (added HW)
DA 2 equals W2	- Optional
DA 3 equals W3	- Set Slew rate through 8 bit optional port scaled to mA/sec
DA 4	- Set Slew rate through 12 bit serial DAC (From SW version SCS110)

Nothing else is affected.

Related commands: RA, R1, R2, R3, WA, W1, W2, W3

## DA - Write to DAC's

From SW version SCC108

**Command:** DA'sp'ch','val'cr'

ch: 0 val: digits  $\pm 000000$  to  $\pm 999999$  in PPM. (WA)  
ch: 1, 2 & 3 val no change. See previous page.

!!!! Please note, that the DA value must always be entered using the trailing zero notation regardless of the WA setting.

**Example:** Command: DA 0,-0480  
Syntax: DA'sp'0',-0480'cr'  
Means a set value of -480 ppm

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

<b>Errors:</b>	SYNTAX ERROR,	means a missing space between the command and the parameter or wrong syntax.
	DATA CONTENTS,	means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.
	ILLEGAL COMMAND	Indicates that you are in a wrong command mode. Change to REMote or LOCal.
	CHANGE IN PROGRESS	Indicates that the controller is in the middle of an internal sequence eg. a polar change. While this is running, it is a new DAC setup is not allowed.
	DAC OWNED BY EXTERNAL INTERFACE	
		Indicates that the DAC is owned by the CAMAC interface
	STACK IS RUNNING	Indicates that the DAC is owned by a Ramp Profile application. (Auto slew rate, Arbitrary point or Equal time slot ramp profile).

## DA continued.

### **Description:**

See also the DA description on the previous page.

The amendment from SW version SCC108 gives the possibility to add a sign to the set value for ch-0 when controlling a bipolar power supply (Attached to a bipolar DAC).

### Function in Uni Polar mode. (Aux switch 8 = "0" Default)

- MPS without a polarity change over switch (motor). Any sign will be ignored.
- MPS with a polarity change over switch (motor). Giving a set value with the opposite sign than the present one will automatically initiate a polarity change over operation.

### Function in Bipolar mode. (Aux switch 8 = "1")

- The set value will follow the signed value.

The '+' &amp; '-' led's on the M-Panel will indicate the polarity status.

The '+' &amp; '-' buttons on the M-Panel will change the polarity status. ('PO +' or 'PO - commands in remote control)

Reading the set value with the DA 0 (without parameters) will automatically add a minus sign to the value, if the output polarity is negative.

Depending on the polarity status may the PO status be affected.

Related commands:

RA, WA

## DA - Write to DAC 0 From

SW version SCC1114

**Command:** DA'sp'0,'val1','val2'cr'

'val1': no change See previous page.  
'val2': 0 or 1 Selecting register 0 or 1 for path storage

!!!! Please note, that the DA value must always be entered using the trailing zero notation.

**Example:** Command: DA 0,-0480,0  
Syntax: DA'sp'0,-0480,0'cr'  
Means a set value of -480 ppm using register 0 for the output current setting

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCC1110)

**Errors:** SYNTAX ERROR, means a missing space between the command and the parameter or wrong syntax.

DATA CONTENTS, means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.

ILLEGAL COMMAND Indicates that you are in a wrong command mode. Change to REMote or LOCAl.

CHANGE IN PROGRESS Indicates that the controller is in the middle of an internal sequence eg. a polar change. While this is running, it is a new DAC setup is not allowed.

### **Description:**

See also the DA description on the previous page.

The amendment from SW version SCC114 gives the possibility to pass the DAC 0 value through two HW registers enabling quick shift between two stored set values this either through SW or a HW line (SYNC input) See chapter 3.3 for further description.

## DA - Read DAC 0

From SW version SCC1114

**Command:** DA'sp'0,'val'cr'

ch: Cannel number  
Val: Blanc or R R adds the status path of the "Two level set value function" registers to the answer. Ab SW version SCC114

**Example:** Command: DA 0  
Syntax: DA'sp'0'cr'  
Means read value of DA channel 0 (Current setting channel)

or

DA 0,R Ab SW Version SCC114  
Syntax: DA'sp'0,R'cr'  
Means read value of DA channel 0 and the register routing path used by the "Two Level Set Function"

**Answer:** 0'sp','val' Val  
< 000000 to ±999999>  
Depending on the DAC scaling

Or

0'sp''val','yy' yy  
00 Write to register 0, DAC from register 0  
01 Write to register 0, DAC from register 1  
10 Write to register 1, DAC from register 0  
11 Write to register 1, DAC from register 1

**Errors:** SYNTAX ERROR means a missing space between the command and the parameter or wrong syntax.

DATA CONTENTS means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.

The amendment from SW version SCC114 gives the possibility to read the DAC 0 register routing status See chapter 3.3 for further description.

## ERRC - ERRor in Code (remote line only)

**Command:** ERRC'cr'

**Example:** Command: ERRC  
Syntax: ERRC'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The command ERRC is used to put the controller into a mode in which all errors will respond with a code number representing which error was encountered.

This mode can be chosen, when the controller(s) is (are) connected to a host computer, which is able to interpret the error message.

Nothing else is affected.

Related commands: ERRT, NERR

## ERRC continued

<u>CODE NO.</u>	<u>ERROR TEXT</u>	
0	EE Error buffer empty	
1	Syntax	
2	Data contents	
3	Data length	
4	Illegal command	
5	Cannot execute command	
6	Status qou, no change	
7	Change in progress	
8	No data present	
9	Local line, input buffer full	
0	Remote line, input buffer full	
11	NOT USED	
12	Cannot execute command	
13	NOT USED	
14	Data-log line, input buffer full	
15	NOT USED	
16	Program module not implemented	
17	NOT USED	
18	DAC owned by external interface	(From version SCC113)

## ERRT - ERRor in Text (remote line only)

**Command:** ERRT'cr'

**Example:** Command: ERRT  
Syntax: ERRT'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The command ERRC is used to put the controller into a mode in which all errors will respond with a text string representing which error was encountered.

This mode is normally chosen, when the controller(s) is (are) connected to a low level host computer or terminal equipment.

Nothing else is affected.

Related commands: ERRC, NERR

## F - ofF

**Command:** F'cr'

**Example:** Command: F  
Syntax: F'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The F command is used to switch-off the power supply (main contactor).

If the OFF and RESET commands both are set to clear non active interlocks, it also clears these interlocks.

All setting are left unaffected.

Nothing else is affected.

Related commands: N, RS

## F1 - ofF Auxiliary Line 1

**Command:** F1'cr'

**Example:** Command: F1  
Syntax: F1'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The F1 command is used to switch-off the Auxiliary 1 line output port.

All setting are left unaffected.

Nothing else is affected.

Related commands: F,F2,N,N1

## F2 - ofF Auxiliary Line 2 (Optional)

**Command:** F2'cr'

**Example:** Command: F2  
Syntax: F2'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The F2 command is used to switch-off the Auxiliary 2 line output port.

The polarity output port can also be used as an auxiliary output line giving a static or a pulse output level (open collector). This can be achieved by replacing the PO (+/-) command with the N2 and the F2 commands. Must be performed at Danfysik or by authorized Danfysik service personnel.

All setting are left unaffected.

Nothing else is affected.

Related commands:

F,F1,N1,N2

## GOFF - Global OFF

(From version SCS108)

**Command:** GOFF'cr'

**Example:** Command: GOFF  
Syntax: GOFF'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.

ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The GOFF command is used to switch-on the Auxiliary output port. This command is actually the same as the N1 command, but is implemented to be compatible with the system 8800 SW. If using this command, the Auxiliary port will normally be connected to the main circuit breaker which again will turn OFF all the voltages including the control voltage.

If the Auxiliary port is connected to the main circuit breaker, power to the CPU will be removed, that is all communication will stop

Related commands: N1

## ID - Identification read

(From version SCS114)

**Command:** ID 'cr'

**Example:** Command: ID  
Syntax: ID 'cr'

**Answer:** System 8500 -  
Id \_\_\_ ;Default after cold boot

or Error message

**Errors:** ILLEGAL COMMAND Wrong syntax (miss spelled).

### **Description:**

The ID command is used to read a user set able text string of maximum 64 characters. The information stored could be information about the power supply as follows: (Ps. All characters are converted to upper case)

```
SYSTEM 8500 TYP 859H  
1250A / 400V  
SW VER SCC114  
ID 1234567890
```

To write information in the identification field, please refer to the ESC<ID command

Related commands: ESC<ID

Affected commands: NONE

## IEEE - IEEE

**Command:** IEEE'cr'

**Example:** Command: IEEE  
Syntax: IEEE'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The IEEE command is used internally between the MPS controller and the externally connected IEEE-interface. The command initiates some amendment to the communication to collaborate with the DF IEEE interface.

In normal use, NEVER use this command, only a power-down or reset of the MPS will remove this status.

Many internal functions are affected by this command.

## LALL - Listen ALL (remote line only)

**Command:** LALL'cr'

**Example:** Command: LALL  
Syntax: LALL'cr'

**Answer:** No answer, except errors  
or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.

### **Description:**

The LALL command is used to put all the connected controllers into a pseudo-addressed mode. This means, that all controllers will respond to any setup command regardless of its addressed state, except for the oN command.

No answers will be available.

The only way to disable the LALL mode is by using an ADR command, either for a new address or to read the last addressed controller.

**Remark:** Concerning the ADR read, the first access will not give any response at all, in this case a second ADR command has to be issued to get an answer.

Nothing else is affected.

**Related commands:** ADR

## LOC - LOCAL (line)

**Command:** LOC'cr'

**Example:** Command: LOC  
Syntax: LOC'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.

### **Description:**

The LOC command is used to switch the line-in-command to the local line. The line-in-command can be locked to local-line by the LOCK command and released by the UNLOCK command.

If the change to local is done from the local-line (control panel), the line-in-command will automatically be LOCKed to local, and can't be changed back from the remote line without releasing it with the UNLOCK command. A change to the remote line initiated from the control panel automatically releases the lock state.

Nothing else is affected.

Related commands: REM, LOCK, UNLOCK

Affected commands: REM

## LOCK - LOCK (remote line only)

**Command:** LOCK'cr'

**Example:** Command: LOCK  
Syntax: LOCK'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is remote line

### **Description:**

The LOCK command is used to put the controller into a mode in which the line-in-command will be locked to the local line. The LOCK state is entered automatically when shift to the local state is initiated from the control panel. From the remote line the LOCK state can only be entered by issuing the LOCK command.

The LOCK feature is to avoid remote access, when serviced and controlled locally through the control panel. The UNLOCK command from remote line is implemented for one reason only, to be able to shut down the entire system in an emergency situation. One should avoid using the LOCK and UNLOCK feature, from the remote line except in an emergency situation.

Nothing else is affected.

Related commands: UNLOCK, (REM, LOC, RLOCK)

**N - oN****Command:** N'cr'**Example:** Command: N  
Syntax: N'cr'**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.**Description:**

The N command is used to switch-on the power supply (main contact). All setting is left unaffected.

This command cannot be used in LALL mode.

Nothing else is affected.

Related commands: F, RS

**N1 - oN Auxiliary Line 1****Command:** N1'cr'**Example:** Command: N1  
Syntax: N1'cr'**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.**Description:**

The N1 command is used to switch-on the Auxiliary line output port.

Nothing else is affected.

Related commands: F1,F2, N2

## N2 - oN Auxiliary Line 2 (Optional)

**Command:** N2'cr'

**Example:** Command: N1  
Syntax: N2'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax  
ILLEGAL COMMAND means that line-in-command is wrong

### **Description:**

The N2 command is used to switch-on the Auxiliary 2 line output port.

The polarity output port can also be used as an auxiliary output line giving a static or a pulse output level (open collector). This can be achieved by replacing the PO (+/-) command with the N2 and the F2 commands. Must be performed at Danfysik or by authorized Danfysik service personnel.

Nothing else is affected.

Related commands: F1,F2, N1

## NASW - No AnSWer (remote line only)

**Command:** NASW'cr'

**Example:** Command: NASW  
Syntax: NASW'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax  
ILLEGAL COMMAND means that line-in-command is local-line

### **Description:**

The NASW command is used to cancel the auto-answer mode, in which some setup commands generates an answer.

Nothing else is affected.

Related commands: ASW

## NERR - No ERRor (remote line only)

**Command:** NERR'cr'

**Example:** Command: NERR  
Syntax: NERR'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The command NERR is used to put the controller into a mode in which all errors only will respond with a "?" and "Bell" without showing which error was encountered.

This mode is normally chosen, if one only wants to be kept informed about an error condition, but is not interested in the type.

Nothing else is affected.

Related commands: ERRC, ERRT

## PO - POLarity (read)

**Command:** PO'cr'

**Answer:** [polarity]  
or Error message

**Example:** Command: PO  
Syntax: PO'cr'

**Answer:** [polarity]  
Syntax: polarity'lf'cr'  
[polarity]: ASCII sign plus or minus. (+ or -)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The PO command is used to verify the actual output polarity of the power supply if a polarity reversal switch is attached or the power supply is in bipolar mode.

The command returns the polarity sign as an ASCII character.  
(Bipolar operation from SW version SCC108)

If there is no polarity switch build-in, the returned polarity will be positive.

Related commands: PO (write), WA ±val, DA 0 ±val, DA 0

Nothing else is affected.

## PO {+/-} POLarity (write)

**Command:** PO sign'cr'

sign: ASCII sign plus or minus. (+ or -)

**Example:** Command: PO +  
Syntax: PO +'cr'

**Answer:** no answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong or no polarity switch build-in.  
DATA CONTENTS means that the sign is neither plus nor minus.  
STATUS QUO means that the desired polarity is already present.

### **Description:**

The PO command is used to change polarity of the power supply, either if a polarity reversal switch is implemented or when using a bipolar DAC (on bipolar supplier from SW SCC108).

Having a polarity reversal switch, the command starts an internal state-machine, that sets the set value to zero, waits until the current gets to zero, switches the supply OFF, changes the polarity, restores the set value and at last switches the supply on again. If the power supply was OFF, then it will stay OFF after the polarity change is over.

For bipolar supplies, the polarity will be changed without turning the power supply OFF first.

(Bipolar operation from SW version SCC108) Preferred command is DA 0,±val. Using this command, it is possible to change to a different negative/positive value.

The polarity command can be HW suppressed by pulling TP9 low. From version SCC107

If no polarity switch is attached or if not set in bipolar mode, an ILLEGAL COMMAND error will be returned if issued.

Related commands: PO (read), WA ±val, DA ±val

Nothing else is affected.

## **PRINT - PRINT**

**Command:** PRINT'cr'

**Example:** Command: PRINT  
Syntax: PRINT'cr'

**Answer:** Two lines each containing up to 15 characters plus terminator as:  
SYSTEM 8500'cr''lf'  
V1.0 A'cr''lf'

or Error message

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The PRINT command is used to return internal information about the MPS type. The contents of these two lines may differ between the power supplies depending of the version.

Line two of this command is used by the M-Panel graphical to initialize it self for different control modules.

The command can be used at the remote-line only.

Nothing else is affected.

### R3 - Read slewdac 1 (absolute)

**Command:** R3'cr'

**Answer:** rampspeed'lf"cr'

rampspeed: digit 0.0 to 1550.40 in mA/sec.

or Error message

**Example:** Command: R3  
Syntax: R3'cr'  
  
Answer: 0048.64  
Syntax: 0048.64'lf"cr'

**Errors:** SYNTAX ERROR, means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

#### **Description:**

The command R3 is used to read an absolute value between 0.0 and 1550 from option port 0. Option port 0 is normally used to set the hardware controlled slew rate circuit (if present). (SLEW-DAC port).

The command is similar to R1 command, except that this command converts the R1 value, that is between 0 and 255, to an absolute value between 0000.0 and 1550. Read-back from W3, will always be in a resolution of 0006. The R3 and W3 value can be interpreted at mA/sec slew rate setting. If other scaling for the mA/sec interpretation is needed, it is possible to reprogram the scaling. Please see the "Esc"<AD command for further information on changing the scaling factor.

Nothing else is affected.

Related commands: W3, DA, (W1), (R1)

### RA - Read DAC

**Command:** RA'cr'

**Answer:** dac'lf"cr'

dac: digit 000000 to 999999  
or Error message

**Example:** Command: RA  
Syntax: RA'cr'  
  
Answer: 004800  
Syntax: 004800'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

#### **Description:**

The RA command is used to read the currently numerical set value in ppm resolution. That is between 0 and 999999 from the regulation-DAC. Use the PO command to read the polarity status.

Preferred command is though DA 0. Using DA 0 will automatically deliver the present polarity status.

Nothing else is affected.

Related commands: WA, DA

## REM - REMote (line)

**Command:** REM'cr'

**Example:** Command: REM  
Syntax: REM'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is locked to local-line  
-- Unlock can be used to release this. --

### **Description:**

The REM command is used to switch the line-in-command to the remote operation. The line-in-command can be locked to remote-line by the RLOCK, command (given from the remote-line). The locked state can be released by a LOC command, also given from the remote-line. The Local-line cannot change the command-line if locked into remote.

Nothing else is affected.

Related commands: LOC, LOCK, UNLOCK, RLOCK

Affected commands: LOC

## RLOCK - Remote LOCK (remote line only)

**Command:** RLOCK'cr'

**Example:** Command: RLOCK  
Syntax: RLOCK'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that the line-in-command is either remote line or unlocked in local line.  
COMMAND ALREADY ACTIVE means that the command has been given already and is still active.

### **Description:**

The RLOCK command is used to lock the line-in-command to the remote state. The RLOCK is similar to the function existing, when line-in-command is switched to local by the local line.

When the RLOCK command is given from the remote line, it will inhibit the control panel to switch the line-in-command to local.

The RLOCK can only be switched off with the REM or LOC command.

Nothing else is affected.

Related commands: (LOCK, REM, LOC, UNLOCK)

## RS - ReSet

**Command:** RS'cr'

**Example:** Command: RS  
Syntax: RS'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The RS command is used to clear all non-pending interlocks.

If Reset and Off are combined will the OFF command also clear all the non-pending interlocks.

Nothing else is affected.

Related commands: F, N

## R(x) - Read slewdac 1 or 2

**Command:** R1'cr'  
or R2'cr'

**Answer:** value'lf''cr'  
value: digit 000 to 255  
Leading zeroes can be omitted in parameter  
or Error message

**Example:** Command: R1  
Syntax: R1'cr'

**Answer:** 025  
Syntax: 025'lf''cr'

**Errors:** SYNTAX ERROR, means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The R1 or R2 commands are used to read a value between 0 and 255 from option port 0 or 1. Option port 0 is normally used for the SLEW-DAC port, and option1 port address is for extension use.

Nothing else is affected.

Related commands: W1, W2, (W3/R3)



## S1H - Status 1 in Hex

**Command:** S1H'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf'cr'      Where STATUS consists of 6 ASCII Hex digits, each position showing the status of a specific function, including all interlocks.

**Example:** Command: S1H  
 Syntax: S1H'cr'  
 Answer: 600001  
 Syntax: 600001'lf'cr'

**Errors:** SYNTAX ERROR      means wrong syntax.  
 ILLEGAL COMMAND      means that line-in-command is wrong.

### **Description:**

The S1H command is used to return an answer about the internal status in HEX format. The returned status line consists of a mixture of interlocks (latched indications) and status (transparent indications).

The HEX format is constructed from the 24 bit in the S1 status. These bits are divided into 6 nibbles and thereafter converted into six ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S1 command. Please refer to the next column and to the S1 command for a detail bit definition.

Spare bits can be assigned to special functions in some power supplies.

Each sign is explained separately under the S1 command.

Nothing else is affected.

Related commands:                      S1, S3H, S1FIRSTH

## S1H continued

HEX conversion examples.

. ! ! . . . . . ! will be represented as in HEX

┌───┬───┬───┬───┬───┬───┐

6    0    0    0    0    1

┌───┐ Equals one nibble.

## S1FIRST - S1 FIRST Status

**Command:** S1FIRST'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf"cr' Where STATUS consists of 24 signs "." or "!" , each showing the status of a specific function, including all interlocks at the time an interlock occurred.

or Error message

**Example:** Command: S1FIRST  
Syntax: S1FIRST'cr'  
  
Answer: .! ! ! . ! . . . . . !  
Syntax: .! ! ! . ! . . . . . ! 'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S1FIRST command is used to return an answer about the state of all internal status at the time the first Interlock occurred including the first interlock. The bit definitions are the same as for the S1 command. Please refer to the S1 command for a detail bit definition.

Spare bits can be assigned to special functions in some power supplies.

Each sign is explained separately under the S1 command.

Nothing else is affected.

Related commands: S1, S1FIRSTH

## S1FIRSTH - S1 FIRST Status in Hex

**Command:** S1FIRSTH'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf"cr' Where STATUS consists of 6 Hex digits, each position showing the status of a specific function, including all interlocks.

or Error message

**Example:** Command: S1FIRSTH  
Syntax: S1FIRSTH'cr'  
  
Answer: 640001  
Syntax: 640001'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S1FIRSTH command is used to return an answer about the state of all internal status at the time the first Interlock occurred including the first interlock.

The HEX format is constructed from the 24 bit in the S1 status. These bits are divided into 6 nibbles and thereafter converted into six ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S1 command. Please refer to the S1 command for a detail bit definition.

Spare bits can be assigned to special functions in some power supplies.

Each sign is explained separately under the S1 command.

Nothing else is affected.

Related commands: S1,S1H, S1FIRST

## S1TIME - S1 Status TIME

**Command:** S1TIME'cr'

**Answer:** hour,min,sec,day,month,year

or Error message

**Example:** Command: S1TIME  
Syntax: S1TIME'cr'  
Answer: 19,54,03,08,03,2009'lf''cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S1TIME command returns the exact time point when the first interlock occurred. The status of all interlock at this very time can be read with the S1FIRST command.

Related commands: CLOCK, S1, S1FIRST

Intentionally blank



## S3H - Status 3 in Hex

From version SCC107

**Command:** S3H'cr'

**Answer:** STATUS  
 Syntax: STATUS'lf'cr' Where STATUS consists of 4 ASCII Hex digits, each position showing the status of a specific function.  
 or Error message

**Example:** Command: S3H  
 Syntax: S3H'cr'  
 Answer: 6001  
 Syntax: 6001'lf'cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S3H command is used to return an answer about internal status signals in HEX format.

The HEX format is constructed from the 16 bit in the S3 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S3 command.

HEX conversion examples.

. ! ! . . . . ! will be represented in HEX as  
 [ ] [ ] [ ] [ ]  
 6 0 0 1  
 [ ] Equals one nibble.

Each sign is explained separately under the S3 command. Spare bits can be assigned to special functions in some power supplies.

Nothing else is affected.

Related commands: S3, S1H

## SOFF - Slow OFF

From version SCC108

**Command:** SOFF'cr'

**Example:** Command: SOFF  
 Syntax: SOFF'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The SOFF command is used to switch-off the power supply (main contactor) and automatically set the set value to zero (WA 000000). This command is actually the same as the "F"- followed by a "WA 000000" command, and is implemented to be compatible with the system 8800 SW.

If the OFF and RESET commands both are set to clear non active interlocks, it also clears these interlocks.

The set value will be set to zero.

Related commands: N, RS

## S5 - Status 5, primary intl.

(Only applicable with 8100092559 "10+10+8 Intl. Module" installed)

**Command:** S5'cr'

**Answer:** STATUS  
 Syntax: STATUS'lf"cr' Where STATUS consists of 16 signs "." or "!" ,  
 each showing the status of a specific function,  
 including all interlocks.

or Error message

**Example:** Command: S5  
 Syntax: S5'cr'

Answer: .!!.....!!.....  
 Syntax: .!!.....!!.....'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S5 command is used to return an answer about the internal status. The returned status line consists of a mixture of interlocks (latched indications) and status (transparent indications).

Each sign is explained separately at the right column.

Nothing else is affected.

Related commands: SIH, S3, S4

## S5 continued

A typical example for an S5 status answer could be as follows:

".!!...!!...!!...!"

1. Character.            16. Character.

The interpretations of the individual characters are:

<u>CHARACTER NO.</u>	<u>CONTENTS</u>
1 . . . . .	P1 (Primary interlock 1)
2 . . . . .	P2 (Primary interlock 2)
3 . . . . .	P3
4 . . . . .	P4
5 . . . . .	P5
6 . . . . .	P6
7 . . . . .	P7
8 . . . . .	P8
9 . . . . .	P9
10 . . . . .	P10 (Primary interlock 10)
11 . . . . .	PSUM (Primary interlock Sum)
12 . . . . .	PSUM
13 . . . . .	Not used
14 . . . . .	Not used
15 . . . . .	Not used
16 . . . . .	Not used

The above definitions are the default implementation. Special power supplies may have modified status/interlock functions. Please refer to the change note chapter for further information.

## S5H - Status 5 in Hex

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S5H'cr'

**Answer:** STATUS  
Syntax: STATUS'lf"cr' Where STATUS consists of 4 ASCII Hex digits,  
each position showing the status of a specific  
function.  
or Error message

**Example:** Command: S5H  
Syntax: S5H'cr'  
Answer: 6030  
Syntax: 6030'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S5H command is used to return an answer about internal status signals in HEX format.

The HEX format is constructed from the 16 bits in the S5 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S5 command.

HEX conversion examples.

. ! ! . . . . . ! ! . . . . will be represented in HEX as  
┌───┐ ┌───┐ ┌───┐ ┌───┐  
6 0 3 0  
└───┘ Equals one nibble.

Each sign is explained separately under the S5 command.

Nothing else is affected.

Related commands: S3, S1H

Intentionally left blank

### S5FIRST - S5 FIRST Status

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S5FIRST'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf'cr' Where STATUS consists of 16 signs "." or "!" ,  
 each showing the status of a specific function,  
 including all interlocks at the time an interlock  
 occurred.  
 or Error message

**Example:** Command: S5FIRST  
 Syntax: S5FIRST'cr'  
 Answer: .!!!.....!!.....  
 Syntax: .!!!.....!!.....'lf'cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

**Description:**

The S5FIRST command is used to return an answer about the state of the internal status at the time the first Interlock occurred including the first interlock. The bit definitions are the same as for the S5 command. Please refer to the S5 command for a detailed bit definition.

Nothing else is affected.

Related commands: S5, S5FIRSTH

### S5FIRSTH - S5 FIRST Status in Hex

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S5FIRSTH'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf'cr' Where STATUS consists of 4 Hex digits, each  
 position showing the status of a specific  
 function, including all interlocks.  
 or Error message

**Example:** Command: S5FIRSTH  
 Syntax: S5FIRSTH'cr'  
 Answer: 6030  
 Syntax: 6030'lf'cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

**Description:**

The S5FIRSTH command is used to return an answer about the state of the internal status at the time the first Interlock occurred including the first interlock.

The HEX format is constructed from the 16 bits in the S5 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S5 command. Please refer to the S5 command for a detailed bit definition.

HEX conversion examples.

.!!!. .... ! will be represented in HEX as  
 [ ] [ ] [ ] [ ]  
 6 0 0 1  
 [ ] Equals one nibble.

Nothing else is affected.

Related commands: S5,S1H, S5FIRST

## S6 - Status 6, secondary interlocks.

(Only applicable with 8100092559 "10+10+8 Intl. Module" installed)

**Command:** S6'cr'

**Answer:** STATUS  
 Syntax: STATUS'lf"cr' Where STATUS consists of 16 signs "." or "!" ,  
 each showing the status of a specific function,  
 including all interlocks.

or Error message

**Example:** Command: S6  
 Syntax: S6'cr'

Answer: .!!.....!!.....  
 Syntax: .!!.....!!.....'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S6 command is used to return an answer about the internal status. The returned status line consists of a mixture of interlocks (latched indications) and status (transparent indications).

Each sign is explained separately at the right column.

Nothing else is affected.

Related commands: S3, S4, S5

## S6 continued

A typical example for an S6 status answer could be as follows:

".!!...!!...!!...!"

1. Character. 16. Character.

The interpretations of the individual characters are:

<u>CHARACTER NO.</u>	<u>CONTENTS</u>
1 . . . . .	S1 (Secondary interlock 1)
2 . . . . .	S2 (Secondary interlock 2)
3 . . . . .	S3
4 . . . . .	S4
5 . . . . .	S5
6 . . . . .	S6
7 . . . . .	S7
8 . . . . .	S8
9 . . . . .	S9
10 . . . . .	S10 (Secondary interlock 10)
11 . . . . .	SSUM (Secondary interlock Sum)
12 . . . . .	SSUM
13 . . . . .	Not used
14 . . . . .	Not used
15 . . . . .	Not used
16 . . . . .	Not used

The above definitions are the default implementation.

## S6H - Status 6 in Hex

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S6H'cr'

Intentionally left blank

**Answer:** STATUS

Syntax: STATUS'lf'cr'      Where STATUS consists of 4 ASCII Hex digits,  
each position showing the status of a specific  
function.

or      Error message

**Example:** Command: S6H  
Syntax: S6H'cr'

Answer: 6030  
Syntax: 6030'lf'cr'

**Errors:** SYNTAX ERROR      means wrong syntax.

ILLEGAL COMMAND      means that line-in-command is wrong.

### **Description:**

The S6H command is used to return an answer about internal status signals in HEX format.

The HEX format is constructed from the 16 bits in the S6 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S6 command.

HEX conversion examples.

. ! ! . . . . . ! ! . . . . will be represented in HEX as

6    0    3    0  
┌───┘      Equals one nibble.

Each sign is explained separately under the S6 command.

Nothing else is affected.

Related commands:              S5, S6

## S7 - Status 7, added internal interlocks.

(Only applicable with 8100092559 "10+10+8 Intl. Module" installed)

**Command:** S7'cr'

**Answer:** STATUS  
 Syntax: STATUS'lf"cr' Where STATUS consists of 16 signs "." or "!" ,  
 each showing the status of a specific function,  
 including all interlocks.

or Error message

**Example:** Command: S7  
 Syntax: S7'cr'

Answer: .!!.....  
 Syntax: .!!.....'lf"cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S7 command is used to return an answer about the internal status. The returned status line consists of a mixture of interlocks (latched indications) and status (transparent indications).

Each sign is explained separately at the right column.

Nothing else is affected.

Related commands: S1, S5, S6

## S7 continued

A typical example for an S7 status answer could be as follows:

".!!..!....."

1. Character. 16. Character.

The interpretations of the individual characters are:

<u>CHARACTER NO.</u>	<u>CONTENTS</u>
1 . . . . .	MINT1 (MPS added internal interlock 1)
2 . . . . .	MINT2 (MPS added internal interlock 1)
3 . . . . .	MINT3
4 . . . . .	MINT4
5 . . . . .	MINT5
6 . . . . .	MINT6
7 . . . . .	MINT7
8 . . . . .	MINT8 (MPS added internal interlock 8)
9 . . . . .	Not used
10 . . . . .	Not used
11 . . . . .	Not used
12 . . . . .	Not used
13 . . . . .	Not used
14 . . . . .	Not used
15 . . . . .	Not used
16 . . . . .	Not used

The above definitions are the default implementation.

## S7H - Status 7 in Hex

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S7H'cr'

Intentionally left blank

**Answer:** STATUS

Syntax: STATUS'lf'cr'      Where STATUS consists of 4 ASCII Hex digits,  
each position showing the status of a specific  
function.

or      Error message

**Example:** Command: S7H  
Syntax: S7H'cr'

Answer: 6000  
Syntax: 6000'lf'cr'

**Errors:** SYNTAX ERROR      means wrong syntax.

ILLEGAL COMMAND      means that line-in-command is wrong.

Description:

The S7H command is used to return an answer about internal status signals in HEX format.

The HEX format is constructed from the 16 bits in the S7 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S6 command.

HEX conversion examples.

. ! ! . . . . . will be represented in HEX as

6 0 0 0  
└───┘ Equals one nibble.

Each sign is explained separately under the S6 command.

Nothing else is affected.

Related commands:              S5, S6, S7

## S7FIRST - S7 FIRST Status

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S7FIRST'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf'cr' Where STATUS consists of 16 signs "." or "!" , each showing the status of a specific function, including all interlocks at the time an interlock occurred.

or Error message

**Example:** Command: S7FIRST  
 Syntax: S7FIRST'cr'  
 Answer: . ! ! . . . . .  
 Syntax: . ! ! . . . . . 'lf'cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S7FIRST command is used to return an answer about the state of the internal status at the time the first Interlock occurred including the first interlock. The bit definitions are the same as for the S7 command. Please refer to the S7 command for a detailed bit definition.

Nothing else is affected.

Related commands: S6, S5FIRSTH

## S7FIRSTH - S7 FIRST Status in Hex

(Only applicable with 8100092559 "10+10+8 Interlock module" installed)

**Command:** S7FIRSTH'cr'

**Answer:** STATUS  
**Syntax:** STATUS'lf'cr' Where STATUS consists of 4 Hex digits, each position showing the status of a specific function, including all interlocks.

or Error message

**Example:** Command: S7FIRSTH  
 Syntax: S7FIRSTH'cr'  
 Answer: 6000  
 Syntax: 6000'lf'cr'

**Errors:** SYNTAX ERROR means wrong syntax.  
 ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The S7FIRSTH command is used to return an answer about the state of the internal status at the time the first Interlock occurred including the first interlock.

The HEX format is constructed from the 16 bits in the S7 status. These bits are divided into 4 nibbles and thereafter converted into four ASCII HEX digits. The individual bit placements in the HEX number are the same as for the S7 command. Please refer to the S7 command for a detailed bit definition.

HEX conversion examples.

. ! ! . . . . . ! ! . . . . will be represented in HEX as  
 [ ] [ ] [ ] [ ]  
 6 0 3 0  
 [ ] Equals one nibble.

Nothing else is affected.

Related commands: S7,S5H, S7FIRST

## TD - Test DAC

**Command:** TD'sp'set'cr'

set: ASCII digit 0 to 8

**Example:** Command: TD 4  
Syntax: TD'sp'4'cr'

**Answer:** No answer, except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The command TD is used to set-up a certain bit-pattern to the DAC output. The command can be used to adjust or verify the DAC's functionality. The nine different patterns are:

TD 0:	All bits are reset to zero . . . . .	Output: 000000
TD 1:	Bit 19 is set on, remaining set to zero . . . . .	Output: 500000
TD 2:	Bit 18 is set on, remaining set to zero . . . . .	Output: 250000
TD 3:	Bit 17 is set on, remaining set to zero . . . . .	Output: 125000
TD 4:	Bit 16 is set on, remaining set to zero . . . . .	Output: 062500
TD 5:	Bit 19 to 16 are set to zero, bit 15 to 0 are set on . . . . .	Output: 062499
TD 6:	Bit 19 to 0 are set on . . . . .	Output: 999999
TD 7:	Bit 19 to 1 are set to zero, bit 0 is set on . . . . .	Output: 000001
TD 8:	Bit 19 to 16 are set to zero, bit 15 is set on, remain set to zero . . . . .	Output: 031250

Previous WA and RA setting are affected. Make a new WA command to correct this.

## TYPE - TYPE

**Command:** TYPE'cr'

**Example:** Command: TYPE  
Syntax: TYPE'cr'

**Answer:** T'sp'type'lf'cr' Type:  
T0, 16 bit ADC for current monitoring not present  
T8, 16 bit ADC for current monitoring present  
or Error message

**Errors:** SYNTAX ERROR, means wrong syntax.

### **Description:**

The TYPE command returns a code indicating if the optional 16 bit ADC module for the current read back has been added.

If a T0 is returned the optional 16 bit ADC is not present and the current monitoring has to be taken from the 8 bit ADC through AD channel 0

If an T8 is returned is the optional 16 bit ADC mounted and the current monitoring can also to be taken from this 16 bit ADC through AD channel 8

The TYPE command is used by the control panel to determine the type of the AD-channel to be used for the current read back. If a T0 is returned, it will use AD channel 0 to display a 3-digit current value (8 bit resolution). If an T8 is returned, it will use AD channel 8 to display a 5-digit current value (16 bit resolution).

Nothing else is affected.

## TYPE - TYPE

From version SCC114

**Command:** TYPE'sp',val,'cr'

val Empty = same as 'A' (compatible with old TYPE command)  
'A' ask if 16 bit ADC is present  
'R' ask size of EEPROM

**Example:** Command: TYPE R  
Syntax: TYPE'sp'R'cr'

**Answer:** T'sp'type'lf'cr'

Type:  
T0, 16 bit ADC for current monitoring not present  
T8, 16 bit ADC for current monitoring present  
OK, EEPROM size can't be verified (cold boot required)  
1K, 1K byte EEPROM mounted  
2K, 2K byte EEPROM mounted

or Error message

**Errors:** SYNTAX ERROR, means wrong syntax.

### **Description:**

The TYPE command is used to return the status of different options of the control module. The status of following options can be given:

- 'A' → 16 bit ADC for the current monitoring present
- 'R' → Size of EEPROM for storing set ups, scaling factors and ID data

For further information of the 16 bit ADC status use, please see old TYPE description on previous page.

To store the min, max and initial settings for other channels than DA 0 a larger EEPROM than 1K must be present(see also 'esc'<daset command description). If only a 1K EEPROM is present the min and max settings for other channels than channel 0 can be set and used; but they will not be remembered after a power down.

Nothing else is affected.

## UNLOCK - UNLOCK (remote line only)

**Command:** UNLOCK'cr'

**Example:** Command: UNLOCK  
Syntax: UNLOCK'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that the line-in-command is either remote line or unlocked in local line.

### **Description:**

The UNLOCK command is used to release the local LOCK state. The LOCK prevents access when controlled from the control panel. The UNLOCK command given from remote line can be used to remotely shut down the entire system in an emergency situation. One should normally avoid using the UNLOCK feature from the remote line except in an emergency situation.

Nothing else is affected.

Related commands: LOCK, (REM, LOC, RLOCK)

## VER - VERsion

**Command:** VER'cr'

**Example:** Command: VER  
Syntax: VER'cr'

**Answer:** Three lines each containing max 23 characters plus terminator as:

```
Copyright DANFYSIK A/S'cr''lf'  
RAMTEX Engineering Aps'cr''lf'  
SCC V1.13 Aug 10 2008'cr''lf'
```

or Error message

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The VER command is used to return internal information about the program and its version. The contents of these three lines are copyright notes, SW version and release date.

The command was designed primarily as a service command, to get information about the internal program.

For special designed SW may these line differ.

The command can be used at the remote-line only.

Nothing else is affected.

## W(x) - Write slewdac 1 or 2

**Command:** W1'sp'rampspeed'cr'  
or W2'sp'value'cr'

ramp speed: digit 000 to 255  
value: digit 000 to 255

Leading zeroes can be omitted in parameter

**Example:** Command: W1 025  
Syntax: W1'sp'025'cr' (most readable syntax but slower)

or Command: W1 25  
Syntax: W1'sp'25'cr' (recommendable syntax medium speed)

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means a missing space between the command and parameters or wrong syntax.

DATA CONTENTS means that parameter format incorrect or a non-digit character found in data-field or parameters outside specified.

### **Description:**

The W1 or W2 command is used to write a value between 0 and 255 to option port 0 or 1. Option port 0 is normally used as the SLEW-DAC port, and option1 port address is normally free.

For the slew rate setting, please see the regulation module chapter

Nothing else is affected.

Related commands: DA, R1, R2, (R3/W3)

### W3 - Write slewdac 1 (absolute)

**Answer:** No answer, except errors  
W3'sp'rampspeed'cr'

Ramp speed: digits 0 to 1550. in mA/sec.

Leading zeros, before decimal point, can be omitted in parameter.

**Example:** Command: W3 0048.64  
Syntax: W3'sp'0048.64'cr' (most readable syntax but slower)

or Command: W3 48.64  
Syntax: W1'sp'48.64'cr (recommendable syntax medium speed)

or Error message

**Answer:** No answer, except errors

**Errors:** SYNTAX ERROR means a missing space between the command and parameters or wrong syntax.

DATA CONTENTS means that parameter format incorrect or a non-digit character found in data field or parameters outside specified.  
Or decimals given by more or less than two

ILLEGAL COMMAND Indicates that you are in a wrong command mode.  
Change REMote or LOCal.

### W3 continued

**Description:**

The command W3 is used to write an absolute value between 0.0 and 1550 from option port 0. Option port 0 is normally used to set the hardware controlled slew rate circuit (if present). (SLEW-DAC port).

The command is similar to W1 command, except that this command converts the W1 value, that is between 0 and 255, to an absolute value between 0000.0 and 1550. This restricts the resolution to 0006.08 mA/sec. Any given value outside the resolution will be rounded. The R3 and W3 value can be interpreted at mA/sec slew rate setting. If other scaling for the mA/sec interpretation is needed, it is possible to reprogram the scaling. Please see the "Esc"<DA command for further information on changing the scaling factor.

Decimal parameters may be entered but will be discarded in later calculation.

Nothing else is affected.

Related commands: R3, (R1)

Remark: From the LOCAL-line the commands W1 and R1 are still used even with the absolute read-out value. The read-out is calculated inside the LOCAL-panel depending on the switch-setting. However, the commands W3 and R3 can be used at the LOCAL-line if wanted.

**WA - Write DAC in ppm**

All SW versions

**Command:** WA'sp'dac'cr'

dac: digits 000000 to 999999 in PPM.

!!!! Please note, that either a leading zero or a trailing zero format can be used by the power supply depending of the initial setup mode. Default factory setting is leading zeroes. (Read leading or trailing as important zeroes)

**Example:** Command: WA 0480  
Syntax: WA'sp'0480'cr'  
For leading zeroes this means 48000 ppm  
For trailing zeroes this means 480 ppm

**Answer:** No answer, except errors.

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means a missing space between the command and the parameter or wrong syntax.

DATA CONTENTS means that parameter format is incorrect, or a on-digit character found in the data field, or parameters is outside specification.

ILLEGAL COMMAND Indicates that you are in a wrong command mode. Change to REMote or LOCal.

CHANGE IN PROGRESS Indicates that the controller is in the middle of an internal sequence eg. a polar change. While this is running, it is a new DAC setup is not allowed.

DAC owned by external interface means that the HW DAC setting in AUX3-b3 is set.

**WA continued****Description:**

The command WA is used to write an PPM value between 0 and 999999 to the regulation module DAC for output set current. Preferred command is though DA 0.

Nothing else is affected.

Related commands: DA, RA

## WA - Write $\pm$ DAC in ppm

From SW version SCC108

**Command:** WA'sp'dac'cr'

dac: digits  $\pm 000000$  to  $\pm 999999$  in PPM. (WA)

!!!! Please note, that either a leading zero or a trailing zero format can be used by the power supply depending of the initial setup mode. Default factory setting is leading zeroes. (Read leading or trailing as important zeroes)

**Example:** Command: WA 0 -0480  
 Syntax: WA'sp'0'sp'-0480'cr'  
 For leading zeroes this means -48000 ppm  
 For trailing zeroes this means - 480 ppm

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:**

SYNTAX ERROR,	means a missing space between the command and the parameter or wrong syntax.
DATA CONTENTS,	means that parameter format is incorrect, or a non-digit character found in the data field, or parameters is outside specification.
ILLEGAL COMMAND	Indicates that you are in a wrong command mode. Change to REMote or LOCAl.
CHANGE IN PROGRESS	Indicates that the controller is in the middle of an internal sequence eg. a polar change. While this is running, it is a new DAC setup is not allowed.
DAC owned by external interface	means that the HW DAC setting in AUX3-b3 is set.

## WA continued.

### **Description:**

See also the DA description on the previous page.

The amendment from SW version SCC108 gives the possibility to add a sign to the set value when controlling a bipolar power supply. No prefixed sign equals no change in the present polarity. That is, if the output current was -500000 and a "WA 600000" was issued then the output current will become -600000. If otherwise a "WA +600000" was issued then the polarity will be altered and the output current become +600000..

Function in Uni Polar mode. (Aux switch 8 = "0" Default)

- MPS without a polarity change over switch (motor). Any sign will be ignored.
- MPS with a polarity change over switch (motor). Giving a set value with the opposite sign than the present one will automatically initiate a polarity change over operation.

Function in Bipolar mode. (Aux switch 8 = "1")

- The set value will follow the signed value.

The '+' & '-' indicators on the display of M-Panel will indicate the polarity status.

The '+' & '-' selectors in the menu on the M-Panel will change the polarity status. ('PO +' or 'PO -' commands in remote control)

Preferred command is though DA 0, val. Using DA 0 will automatically deliver the present polarity status.

Depending on the polarity status the PO status may be affected

Related commands: RA, DA

## Esc<AD - AD setup

**Command:** 'Esc'<AD'sp'ch,scale\_factor,no\_Offset,digits,format,ch\_reroute'cr'

ch: ASCII digit 0 to 15  
Scale\_factor: 9 digit floating point value plus sign.  
Offset: 5 digit floating point value plus sign. From version SCC103  
No\_digit: 1 to 6  
format: A (Absolute), D (Signed) or U (Unsigned)  
ch\_reroute: ASCII digit 0 to 15

**Example:** Command: 'Esc'<AD 0,101.0025,0,3,A,0  
Syntax: AD'sp'0,101.0025,0,3,a,0'cr'

or

Command: 'Esc'<AD 0,101.0025  
Syntax: AD'sp'0,101,0025'cr'  
Non entered parameters are not changed.

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<AD command is used to scale and/or to reroute any of the 15 AD channels. Gain adjustments are also performed with this command.

All AD channels are internally normalized to 1 for full scale before multiplied with the scale factor positive or negative. This simplifies the scale factor to be nearly the same as the desired max output reading for most applications.

The number of digits returned is also programable between 1 and 6. But not to disturb the operation of the M-Panel, please do not change the number of digits for the first 9 channels.

## AD continued

The number of digits also defines the max hold value during overflow. For example if no. of digits =3 then 999 is displayed as overflow.

On bipolar supplies a format parameter can issued to always return a positive value. The "A" format converts the AD value to an absolute value. (-1 to 1)⇒ (1 to 0 to 1)  
The "D" format converts the AD value to a signed value. (-1 to 1)⇒ (-1 to 1)  
The "U" format converts the AD value to an unsigned value. (-1 to 1)⇒ (0 to 1)

Rerouting a channel can for example be used to display the water flow on the M-Panel display instead of the Tesla. Following example show this:

'Esc'<AD 13,25,3,U,1

Issuing an {'Esc'<AD ch} without any parameters will return the present channel setting.

The setting becomes first operational after a processor reset or a mode switch update.

Nothing else is affected.

CHANNEL	VALUE	AD port	no. digit
-			
0	Output current	12 bit port 0	3
1	Tesla	12 bit port 3	3
2	Output Voltage	12 bit port 2	3
3	Internal +15V sup.	10 bit port 1	3
4	Internal -15V sup.	10 bit port 2	3
5	Internal +5V sup.	10 bit port 3	3
6	Delta temperature	12 bit port 1	3
7	Trans. Bank Vce	12 bit port 5	3
8	Optional Iout (16 Bit)	17 bit port 1	5
9	Aux. Iout (Ctr. Panel)	mirror ch0 or ch8	3
10	Aux. Iout (Ctr. Panel)	mirror ch8	5
11	Iout Optional	12 bit port 6	3
12	Vout Optional	12 bit port 4	3
13	Water flow	16 bit frq. count	3
14	Free on plug P29 (±1V)	12 bit port 7	3
15	Free on plug P19 (10V)	10 bit port 0	3

## Esc<ADR - ADdRes setup write

**Command:** 'Esc'<ADR'sp'ch,address

ch: ASCII digit 0 to 1 1=local; 0=remote  
Address: ASCII digit 0 to 255

**Example:** Command: 'Esc'<ADR 0,10  
Syntax: 'Esc'<ADR'sp'0,10'cr'

**Answer:** No answer except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR, means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS, means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<ADR command is used to configure the communication line address. The setting becomes first operational after a processor reset or a mode switch update.

Giving the 'Esc'<ADR'sp'ch, without any address will return the current setting.

Default address is 0 for both local and remote line.

## Esc<ADR - ADdRes setup read

**Command:** 'Esc'<ADR'sp'ch

ch: ASCII digit 0 to 1 1=local; 0=remote

**Example:** Command: 'Esc'<ADR 0  
Syntax: 'Esc'<ADR'sp'0'cr'

**Answer:** 'ch,address

or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<ADR read command is used to verify the programmed line address.

## Esc<ADSET - Analog to Digital converter SETting.

### From version SCC103

**Command:** 'Esc'<ADSET ch,val1,val2'cr'

ch: ASCII digit 0 to 15  
val1: Z, F, B or T  
val2: ASCII 00000 to 99999

**Example:** Command: 'Esc'ADSET 8,F,999999  
Syntax: 'Esc'ADSET 8,F,999999'cr'

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.  
DATA CONTENTS means that parameter format is incorrect or a non-digit character is found in the data field or the parameter is outside the specification.

### **Description:**

The ADSET command is used to automatically Gain and Offset adjust a specific AD channel to display a certain value equals to "val2". If val2 is not given, zero will be read for the Offset - and the factory default for the gain value.

**Note:** Be aware, there is no syntax check on the values. Wrong values may give meaningless output readings. !

## ADSET continued

val1 interpretation

Z:	Offset adjustment (to Zero)	From version SCC104
F:	Gain adjustment (To full scale)	From version SCC104
B:	Restores the Offset value to the factory default. (Bottom)	
T:	Restores the Gaint value to the factory default. (Top)	From version SCC104

Related commands: 'Esc'<DASET, 'Esc'<AD

Affected commands: NONE

## Esc<AUX - AUXiliary setup write

**Command:** 'Esc'<AUX'sp b1,b2,b3,b4,b5,b6,b7,b8

bx:: ASCII 0 or 1

**Example:** Command: 'Esc'<AUX 0,0,1,1  
Syntax: 'Esc'<AUX'sp'0,0,11'cr'

Current settings are kept for non-entered bits.

**Answer:** No answer, except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR, means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS, means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<AUX command is used to define the different auxiliary setting  
The setting becomes operational immediately after then saving in the EEPROM.

The bit definitions are illustrated at the right of this page and on the dip switch setting chapter.

Setting of bit 16 and 17 is intended for Offset DAC use. That is a 16 bit setting between 88 and 96% (Bit16=0 & BIT 17=1) or between 92% and 100% output current (Bit16=1 & BIT 17=1). For linear DAC settings please set bit 16 & 17 to transparent mode.

Using the "WA" command a leading zeroes or trailing zeroes input format can be chosen.  
- For leading zeroes: "WA 123" equals "WA 000123"  
- For trailing zeroes: "WA 123" equals "WA 123000"

Giving the 'Esc'<AUX without any parameter will return the current setting.

## Esc<AUX continued

b1: DAC 16:	0:	Transparent	1: = 1	0: = 0	1: = 1
b2: DAC 17:	0:		0: = 0	1: = 1	1: = 1
b3: Interlock clear	0:	RS resets Interlocks	1:	RS and OFF resets Interlocks	
b4: WA zeroes	0:	WA uses trailing zeroes	1:	WA uses leading zeroes	
b5: Display Units	0:	Display in V and A	1:	Display in %	
b6: CAMAC Dir	0:	Disabled (Hi Z)	1:	Enabled as output	
b7: Wake up level	0:	0% output after reset	1:	100% output after reset	
b8: Uni/BI-polar	0:	Uni polar DAC	1:	Bipolar DAC	

Those in bold are the default setting

If a CAMAC Control Module is not inserted at slot P3 (Pin P3.A32 pulled low), the DAC port may be configured as output by setting b6: to '1' (Enabled as output). This enables either the DAC bits to be analysed or to be connected to another power supply in a parallel tracking mode. (the second supply must be configured for CAMAC control).

Wake up to 100% output current (From version SCC109) is intended to be used with the 20bit multiplying DAC and having analogue input reference (The DAC is used as an multiplication factor for the reference signal)

## Esc<AUX - AUXiliary setup read

**Command:** 'Esc'<AUX'

**Example:** Command: 'Esc'<AUX  
Syntax: 'Esc'<AUX'cr'

**Answer:** b1,b2,b3,b4,b5,b6,b7,b8

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The 'Esc'<AUX read command is used to verify the programmed auxiliary bit setup.

## Esc<AUX2 - AUXiliary setup write From version SCS110

**Command:** 'Esc'<AUX'sp b1,b2,b3,b4,b5,b6,b7,b8

bx:: ASCII 0 or 1

**Example:** Command: 'Esc'<AUX 0,0,1,1  
Syntax: 'Esc'<AUX'sp'0,0,11'cr'  
Current settings are kept for non-entered bits.

**Answer:** No answer except errors.

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<AUX command is used to define the different auxiliary setting  
The setting becomes operational immediately after then saving in the EEPROM.  
The bit definitions are illustrated at the right of this page and on the dip switch setting chapter.

Giving the 'Esc'<AUX without any parameter will return the current setting.

## Esc<AUX2 continued

b1 : 1= AD 0,8, 9 and 10 will be multiplied by -1 That is negated.  
b2 : 1= Inverts the polarity status line.  
b3 : 1= ON/OFF enabled through serial remote line in CAMAC mode \*1  
b4: Auto slew rate ramp profile shape. 0= Cosine & 1=Square \*2  
b5: 1= HW control of "Two Level Set Function" (Sync input line) \*3  
b6: Not used  
b7: Not used  
b8: Not used

Default setting: 0,1,0,0,0,0,0,0

\*1) From SW version SCC112

With a custom interface plugged into P3 and pulling pin C32 low and enabling b3 will allow DAC settings through the CAMAC port, but ON/OFF/RESET must still be issued through the remote serial interface.

\*2) From SW version SCC113 (see also command 'esc'<slope time)

\*3) From SW version SCC114 (see also command 'da 0' read and write)

## Esc<AUX2 - AUXiliary setup read

**Command:** 'Esc'<AUX'

**Example:** Command: 'Esc'<AUX  
Syntax: 'Esc'<AUX'cr'

**Answer:** b1,b2,b3,b4,b5,b6,b7,b8

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The 'Esc'<AUX read command is used to verify the programmed auxiliary bit setup

## Esc<BAUD - BAUD rate setup write

**Command:** 'Esc'<BAUD'sp'ch,baud,parity, odd/even,no\_bits,stop\_bits

ch:	ASCII digit 0 or 1	1=local;	0=remote
baud	ASCII 1200, 2400, 9600, 19200, 38400, 57600, 76800, 115200		
parity	ASCII digit 0 or 1	0: OFF;	1: ON
odd/even	ASCII digit 0 or 1	0=odd;	1=even
no_bits:	SCII digit 7 or 8	0=8;	1=7
Stop_bits	ASCII digit 0 or 1	0=1½;	1=2

**Example:** Command: 'Esc'<BAUD 0,9600,0,8,1  
 Syntax: 'Esc'<BAUD'sp'0,9600,0,1,1'cr'  
 Current settings are kept for non-given settings

**Answer:** No answer except errors.

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
 SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
 DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<BAUD command is used as UART HW setup for both channels..  
 The setting becomes first operational after a processor reset or a mode switch update.

Default setting is "9600Baud, No party, 8 Bits, 1½ Stop bits" for both local and remote line.

Giving the 'Esc'<BAUD'sp'ch, without any parameter will return the current setting.

## Esc<BAUD BAUD rate setup read

**Command:** 'Esc'<BAUD"sp'ch

**Example:** Command: 'Esc'<BAUD 0  
 Syntax: 'Esc'<BAUD'sp'0'cr'

**Answer:** 'ch,baud,parity, odd/even,no\_bits,stop\_bits

1,9600,0,0,0,0

ch:	ASCII digit 0 or 1	1=local;	0=remote
baud	ASCII 1200, 2400, 9600, 19200, 38400, 57600, 76800, 115200		
parity	ASCII digit 0 or 1	0: OFF;	1: ON
odd/even	ASCII digit 0 or 1	0=odd;	1=even
no_bits:	ASCII digit 7 or 8	0=8;	1=7
Stop_bits	ASCII digit 0 or 1	0=1½;	1=2

or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
 SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.

### **Description:**

The 'Esc'<BAUD read command is used to verify the programmed baud rate setup (UART HW setup).

### Esc<COLDBOOT - Wake up mode setup write

**Command:** 'Esc'<COLDBOOT' 'sp'b1,b2,b3,b4,b5,b6,b7,b8

bx:: ASCII 0 or 1

**Example:** Command: 'Esc'<COLDBOOT 1,1,1,0,1,0  
Syntax: 'Esc'<COLDBOOT'sp'1,1,1,0,1,0'cr'  
Current settings are kept for non-entered bits.

**Answer:** No answer except errors.

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

**Description:**

The 'Esc'<COLDBOOT command is used to define the wake up control mode, i.e. which line has to be active after a reset and what error response should be returned if encountering an error.

The setting becomes operational immediately after then saving in the EEPROM..

The bit definitions are illustrated at the right of this page and on the dip switch setting chapter.

Giving the 'Esc'<COLDBOOT command without any parameter will return the current setting.

### Esc<COLDBOOT continued

b1 :	Remote addressing:	0: Enabled	1: Disabled		
b2 :	Local addressing:	0: Enabled	1: Disabled		
b3 :	Default line in:	0: Remote	1: Local		
b4 :	Auto answer:	0: Disabled	1: Enabled		
b5 :	ERR response:	0: <b>?</b>	1: <b>?</b> and	0: <b>?</b> and	1: <b>?</b> and
b6 :	ERR response:	0: only	0: ERR code	1: ERR text	1: ERR text
b7 :	not used				
b8 :	not used				

Those in bold are the default setting

### Esc<COLDBOOT - Wake up mode setup read

**Command:** 'Esc'<COLDBOOT'

**Example:** Command: 'Esc'<COLDBOOT  
Syntax: 'Esc'<COLDBOOT'cr'

**Answer:** b1,b2,b3,b4,b5,b6,b7,b8

or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

**Description:**

The 'Esc'<COLDBOOT read command is used to verify the programmed wake up bit setup.

## Esc<CPURESET

From version SCC112

**Command:** 'Esc'<CPURSET 'cr'

**Example:** Command: 'Esc'<CPURSET  
Syntax: 'Esc'<CPURSET'cr'

**Answer:** Start up character. 'R' if the control module starts in the Remote mode as default or "L" if the Local mode is set. (Until SW version SCC112 was the start up character always "FF" in hex)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The CPURESET command is used to restart the CPU in exact the same way as the hardware reset button.

Useful for setup settings that requires a reset which are (Not listed commands gets operational immediately after issued):

'Esc'<ADR  
'Esc'<AUX setting b6, b7 and b8  
'Esc'<AUX2 setting b3  
'Esc'<BAUD  
'Esc'<COLDBOOT setting b4, b5 and b6  
'Esc'<LINE

Related commands: NONE

Affected commands: Esc<COLDBOOT

Intentionally blank

## Esc<DA - DA setup

**Command:** 'Esc'<DA'sp'ch',scale\_factor,Offset,no\_digits,format,ch\_reroute'cr'

ch: ASCII digit 0 to 15  
Scale\_factor: 9 digit floating point value plus sign.  
Offset: 5 digit floating point value plus sign. From version SCC103  
No\_digit: 1 to 6  
format: A (Absolute), D (Signed) or U (Unsigned)  
ch\_reroute: ASCII digit 0 to 15

**Example:** Command: 'Esc'<DA 3,12345,0,3,U,3  
Syntax: DA'sp'3,12345,0,3,U,3'cr'

or

Command: 'Esc'<DA 3,12345  
Syntax: AD'sp'0,12345'cr'  
Non entered parameters are left unchanged.

**Answer:** No answer except errors.

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<DA command is used to scale and/or to reroute any of the present four DA channels.

All DA channels are internally normalized to 1 for full scale before multiplied with the scale factor positive or negative. This simplifies the scale factor to be nearly the same as the desired max set value for most applications.

The number of digits for the set value is also programmable between 1 and 6.

## ESC<DA continued

The number of digits also defines the max hold value during overflow. For example if no. of digits =3 then 999 is maximum allowable value.

On bipolar supplies a format parameter can be issued to always return a positive value. The "A" format converts the AD value to an absolute value. (-1 to 1)⇒ (1 to 0 to 1)  
The "D" format converts the AD value to a signed value. (-1 to 1)⇒ (-1 to 1)  
The "U" format converts the AD value to an unsigned value. (-1 to 1)⇒ (0 to 1)  
This command can be used if the current set value has to be in amps (or milli Amps) or to change the absolute slew rate setting for the W3 (DA 3) command.

Issuing an {'Esc'<DA ch} without any parameters will return the present channel setting.

The setting becomes operational immediately after then saving in the EEPROM..

Nothing else is affected.

Below are listed the a viable DA channels.

CHANNEL	VALUE	DA channel spec.	Equal to
(X)			
0	Output current	24 bit(/32 bit)	WA range as default
1	Slew rate DAC 1 direct	8 bit	W1, R1 setting
2	Optional DAC 2	8 bit	W2, R2 setting
3	Slew rate DAC 1 Absolute	8 bit	W3, R3 setting

## Esc<DASET - Digital to Analog converter SETting.

From version SCC104

**Command:** 'Esc'<DASET ch,val1,val2'cr'

ch: ASCII digit 0 to 15  
val1: Z, F, B or T  
val2: ASCII 00000 to 99999

**Example:** Command: 'Esc'DASET 0,F,999999  
Syntax: 'Esc'DASET 0,F,999999'cr'

**Answer:** No answer except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.  
DATA CONTENTS means that parameter format is incorrect or a non-digit character is found in the data field or the parameter is outside the specification.

### Description:

The DASET command is used to automatically Gain and Offset adjust a specific DA channel to given value "val2". If val2 is not provided, zero will be taken for the Offset - and all nines for the Gain adjustment.

This feature is specially designed for "non HW calibrated" DACs as for the 855 DAC or for changing the slew rate setting value directly in Amp/Sec. (DA 3)

**Note:** Be aware, there is no syntax check on the values. Wrong values may give meaningless output readings. !

**Related commands:** 'Esc'<DASET, 'Esc'<DA

**Affected commands:** NONE

## ESC<DASET continued

val1 interpretation

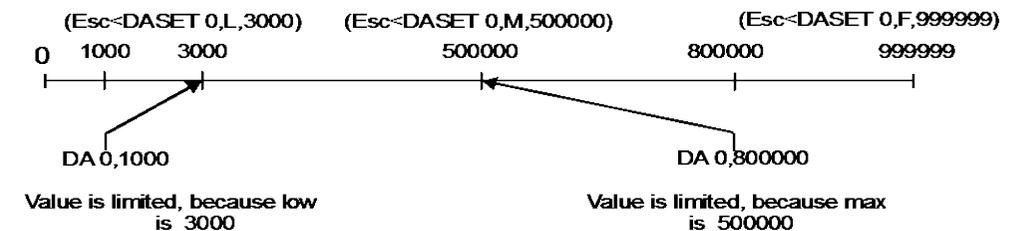
Z:	Offset adjustment (to Zero)	From version SCC104
F:	Gain adjustment (To full scale) *	From version SCC104
B:	Restores the Offset value to the factory default. (Bottom)	From version SCC104
T:	Restores the Gain value to the factory default. (Top)	From version SCC104
L:	Low(min) value	From version SCC114
M:	Max value *	From version SCC114
I :	Initial value after reset	From version SCC114

**Note** Be aware when performing the full scale adjustment 'F', that the set value (DA 0,xxxxxx) cannot be set higher than the given max value 'val2' by the 'M' setting. That is, perform the full scale adjustment before the limit setting.

**Example on limit setting**

Esc<DASET 0,F,999999 ;Gain Adjustment  
Esc<DASET 0,M,500000 ;Set max allowed output current to 50%  
Esc<DASET 0,L,3000 ;Set lowest allowed output current

DA 0,800000 ' → Value will be limited and set to 500000 with Error message "value is limited"  
DA 0,1000 ' → Value will be limited and set to 3000 with Error message "value is limited"  
Esc<DASET 0,I,2000 ' → Value will be limited. Initial value has to be higher than low set value



**Note:** When auto scaling: Using a unipolar DAC, the initially Offset value must always be negative and the gain a bit too high. From version SCC108, a bipolar DAC can be attached, that is, the Offset may be initially either positive or negative but the gain must still be a bit too high. On bipolar DACs, the gain can only be auto adjusted at +100%.

**Related commands:** 'Esc'<DASET, 'Esc'<AD

**Affected commands:** NONE

### Esc<DASET - DA converter SETting read. From version SCC114

**Command:** 'Esc'<DASET ch'cr'

ch: ASCII digit 0 to 4

**Example:** Command: 'Esc'DASET 0  
Syntax: 'Esc'DASET 0'cr'

**Answer:** val1,val2 ,val3 ,val4, val5  
val1 = 000000 to ±999999 (Full scale)  
val2 = 000000 to ±999999 (Zero offset)  
val3 = 000000 to ±999999 (Low/min value)  
val4 = 000000 to +999999 (Max value)  
val5= 000000 to +999999 (Initial value)

or

**Errors:** SYNTAX ERROR means wrong syntax.  
ILLEGAL COMMAND means that line-in-command is wrong.  
DATA CONTENTS means that parameter format is incorrect or a non-digit character is found in the data field or the parameter is outside the specification.

#### **Description:**

The ESC<DASET read command is used to read the scaling and setting values for a given DA channel. Possible channels are 0,1,2 and 4.

Related commands: 'Esc'<DASET, 'Esc'<DA

Affected commands: NONE

### Esc<ID - IDdentification write. From version SCC114

**Command:** 'Esc'<ID val'cr'

val: ASCII character (up to 64 characters)  
\r is reserved word that will generate a carriage return and a line feed ('cr' 'lf')

**Example:** Command: 'Esc'<ID SYSTEM 8500 typ 859\r 1250A/400V\rSW ver SCS  
114\rID 1234567  
Syntax: 'Esc'<ID'sp'SYSTEM 8500 typ 859\r 1250A/400V\rSW ver SCS  
114\rID 1234567 'cr'

**Answer:** No answer, except errors  
or OK if auto answer mode is set

**Errors:** SYNTAX ERROR means wrong syntax.  
DATA CONTENTS means that parameter format is incorrect or the number of characters is outside the specification.

#### **Description:**

The 'esc'<ID command is used to enter a user defined text string of maximum 64 characters in length that will be stored in the EEPROM. The information stored could be the information about the power supply as follow:

```
SYSTEM 8500 TYP 859H
1250A / 400V
SW VER SCC114
ID 1234567
```

Note: All characters are converted to upper case regardless if they are typed in lower case

- If the input string is larger than 64 characters, the whole string will be ignored and an error message "data length" will be generated.

Related commands: ID

Affected commands: NONE

## Esc<INTERLOCK - INTERLOCK Bits Definition setup write

**Command:** 'Esc'<INTERLOCK' 'sp'interlock\_set,crc\_check

interlock\_set: 8 Hex digits  
crc\_check:: 2 Hex digits

**Example:** Command: 'Esc'<INTERLOCK 03FFFC80,0F  
Syntax: 'Esc'<INTERLOCK'sp'03FFFC80,0F'cr'  
Leading zeroes can be omitted

**Answer:** No answer except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<INTERLOCK command is used to define which input bits have to be treated as interlocks and which bits as status. The Interlock bits will be latched and capable to trigger the first catch register.

The setting becomes operational immediately after then saving in the EEPROM..

The interlock set and the crc check values can be calculated by Danfysik service personnel only. In case of a reentry is needed (accidentally used COLDBOOT), please use the "interlock\_set, crs\_check" value given in the test report. (Standard setting do not need reentry after COLDBOOT.)

Giving the 'Esc'<INTERLOCK command without any parameter will return the current setting.

## Esc<INTERLOCK - INTERLOCK Bits definition setup read

**Command:** 'Esc'<INTERLOCK'

**Example:** Command: 'Esc'<INTERLOCK  
Syntax: 'Esc'<INTERLOCK'cr'

**Answer:** interlock\_set,crc\_check  
or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The 'Esc'<INTERLOCK command is for factory use only. The read option is used to verify which of the input bits are defined as latched inputs and which are transparent statuses. The answer is a coded message. The factory set value is written in the test report.

## Esc<LINE - Serial LINE working mode setup write

**Command:** 'Esc'<LINE' 'sp'ch',b1,b2,b3,b4,b5,b6,b7,b8

bx:: ASCII 0 or 1

Ch: 1 = LOCAL & 0 = REMOTE

**Example:** Command: 'Esc'<LINE 1,0,0,0,0,1  
Syntax: 'Esc'<LINE'sp'ch',1,0,0,0,0,1'cr'  
Current settings are kept for non-entered bits.

**Answer:** No answer except errors  
Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<LINE command is used to configure the working protocol of the serial lines.

The setting becomes first operational after a processor reset or a mode switch update.

The bit definitions are illustrated at the right of this page and on the dip switch setting chapter.

Giving the 'Esc'<LINE sp'ch', command without any parameter will return the current setting.

## Esc<LINE continued

b1:	RS485 Communication:	<b>0:</b> Disabled	1:	Enabled	
b2:	RS485 Line Turn Around:	<b>0:</b> 0	1:	1	(From SCC110)
b3:	RS485 Line Turn Around:	<b>0:</b> 0	1:	1	(From SCC110)
b4:	'OK' Answer Mode:	<b>0:</b> Disabled	1:	Enabled	(From SCC110)
b5:	BOOT character:	<b>0:</b> "FF"	1:	"R" (remote) "L"(local)	
b6:	Not Used:	<b>0:</b> Disabled	1:	Enabled	
b7:	XON/XOFF Protocol:	<b>0:</b> Disabled	1:	Enabled	
b8:	Not Used:	<b>0:</b> Not included	1:	Included	

Those in bold are the default setting

b2, b3 : 0,0 Delay=0

b2, b3 : 0,1 Delay=time to transmit 2 dummy characters

b2, b3 : 1,0 Delay=time to transmit 4 dummy characters

b2, b3 : 1,1 Delay=time to transmit 8 dummy characters

Esc<LINE - Serial LINE working mode setup read

## Command: 'Esc'<LINE' 'sp'ch',

**Example:** Command: 'Esc'<LINE' 'sp'ch',  
Syntax: 'Esc'<LINE' 'sp'ch'cr'

**Answer:** LINE' 'sp'ch',b1,b2,b3,b4,b5,b6,b7,b8

or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

### **Description:**

The 'Esc'<LINE read command is used to verify the programmed wake up bit setup.

## Esc<PPULS - on PULS setup write

**Command:** 'Esc'<PPULS'sp'val'

val: ASCII digit 0 to 255                      in 100msec. Steps

**Example:** Command: 'Esc'<PPULS 5  
Syntax: 'Esc'<PPULS'sp'5'cr'

**Answer:** No answer except errors

Or OK                      if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND      means that line-in-command is wrong.  
  
SYNTAX ERROR                      means a missing space between the command and parameter or wrong syntax.  
  
DATA CONTENTS                      means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<PPULS command is used to configure the ON pulse time. That is, within this time, the main contactor must be activated so it can be latched on. The ON time is used as inrush current limit time to charge up large capacitor banks. Normally on switch mode power supplies.

The setting becomes operational immediately after then saving in the EEPROM..

Be aware, that after a cold boot, the PPULS time will be reset to the default value which is 500 msec.

Giving the 'Esc'<PPULS without any address will return the current setting.

## Esc<PPULS - on PULS setup read

**Command:** 'Esc'<PPULS'

**Example:** Command: 'Esc'<PPULS  
Syntax: 'Esc'<PPULS'cr'

**Answer:** pulse time value 0 to 255 in 100msec. Steps  
  
or Error message

**Errors:** ILLEGAL COMMAND      means that line-in-command is wrong.

### **Description:**

The 'Esc'<PPULS read command is used to verify the programmed on pulse time.

### Esc<PPULS1 - Auxiliary on PULS setup write

**Command:** 'Esc'<PPULS1'sp'val'

val: ASCII digit 0 to 255 in 100msec. Steps

**Example:** Command: 'Esc'<PPULS1 5  
Syntax: 'Esc'<PPULS1'sp'5'cr'

**Answer:** No answer except errors

Or OK if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.  
SYNTAX ERROR means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

#### **Description:**

The 'Esc'<PPULS1 command is used to configure the Auxiliary ON pulse time.

Giving a Zero pulse time, equals to setting the output line to a static operation. That is, the auxiliary line can only be turned OFF with the F1 Command.

The setting becomes operational immediately after then saving in the EEPROM..

PPULS1 time will after a Coldboot be reset to the default value that is 0 or equal to static operation

Giving the 'Esc'<PPULS1 without any address will return the current setting.

### Esc<PPULS1 - Auxiliary on PULS setup read

**Command:** 'Esc'<PPULS1'

**Example:** Command: 'Esc'<PPULS1  
Syntax: 'Esc'<PPULS1'cr'

**Answer:** pulse time value 0 to 255 in 100msec. Steps

or Error message

**Errors:** ILLEGAL COMMAND means that line-in-command is wrong.

#### **Description:**

The 'Esc'<PPULS read command is used to verify the programmed on pulse time.

## Esc<POLDEALAY - Polarity DELAY setup write

(From version SCC108)

**Command:** 'Esc'<POLDELAY'sp'val'

val: ASCII digit 0 to 255                      in 100msec. Steps

**Example:** Command: 'Esc'<POLDELAY 50  
Syntax: 'Esc'<POLDELAY'sp'50'cr'

**Answer:** No answer except errors

Or OK                      if auto-answer mode is set. (From SW version SCS110)

**Errors:** ILLEGAL COMMAND      means that line-in-command is wrong.  
SYNTAX ERROR                      means a missing space between the command and parameter or wrong syntax.  
DATA CONTENTS                      means that the parameter format is incorrect or a non-digit character is found in the data field or a parameter is outside the specification.

### **Description:**

The 'Esc'<POLDELAY command is used to set a time delay between the OFF state and the activation of the polarity change over switch, this to let the rest energy in the magnet to decay.

The time delay is only inserted, if the power supply was ON before invoking the POL +/- command. That is, when just changing the polarity in the power OFF mode, no time delay will be inserted..

Giving the 'Esc'<POLDELAY without any value will return the current setting.

## Esc<POLDEALAY - Polarity DELAY setup read

(From version SCC108)

**Command:** 'Esc'<POLDELAY'

**Example:** Command: 'Esc'<POLDELAY  
Syntax: 'Esc'<POLDELAY'cr'

**Answer:** pulse time value 0 to 255 in 100msec. Steps

or Error message

**Errors:** ILLEGAL COMMAND      means that line-in-command is wrong.

### **Description:**

The 'Esc'<POLDELAY read command is used to verify the programmed polarity pulse delay time.