SYSTEM 5000

USER MANUAL

PReset 5000

5901-VE03 (9804)

TABLE OF CONTENTS

1 General information

"PReset 5000" is an easy to use, menu driven application software facilitating parameter setup and setup-file management for SYSTEM 5000 units.

At present SYSTEM 5000 units comprise microprocessor based universal transmitters and displays.

Preset enables storage and retrieval of setup files from disk or from the SYSTEM 5000 units.

Printout of setup files including all parameters is available.

This manual is updated for PReset software version 1.02. For later versions please consult the READ.ME file on your PReset system diskette.

2 Introduction to PReset

2.1 System requirements

The PReset software is based on a standard presentation software that will operate on most IBM-compatible PCs with the following configuration:

Memory:	min. 512 kB accessible memory
Display:	CGA, HCG, EGA, or VGA
Operating system:	DOS 3.1 or later versions
Printer (option):	Epson or IBM compatible ASCII printer
Mouse (option):	Microsoft compatible mouse (MOUSE.COM)

2.2 Installation

The diskette contains the following files:

READ.ME	Latest changes
README.BAT	Program for reading the READ.ME file
INSTALL.BAT	PReset installation program
INSTALL.TXT	Installation guide for DOS, WIN 3.xx and WIN 95
PRESET.ZIP	PReset ZIP packed file

The program is a packed ZIP file format, and the command for the installation is the following:

C:\>A:INSTALL (Enter)

This will install PReset in the default directory C:\PRESET. If the program is to be installed in another directory, type the following:

C:\>A:INSTALL\[DIR] (Enter)

where [DIR] is the path of the directory in which you wish to install PReset, i.e. C:\PROGRAMS. NOTE: The directory must already exist.

PReset is always installed in a directory of it's own, in this case C:\PROGRAMS\PRESET).

For installation and start-up guidance, please read install.txt under edit, notebook, or other text editor.
After the installation all the neccesary files are in the chosen directory (default directory: C:\PRESET)

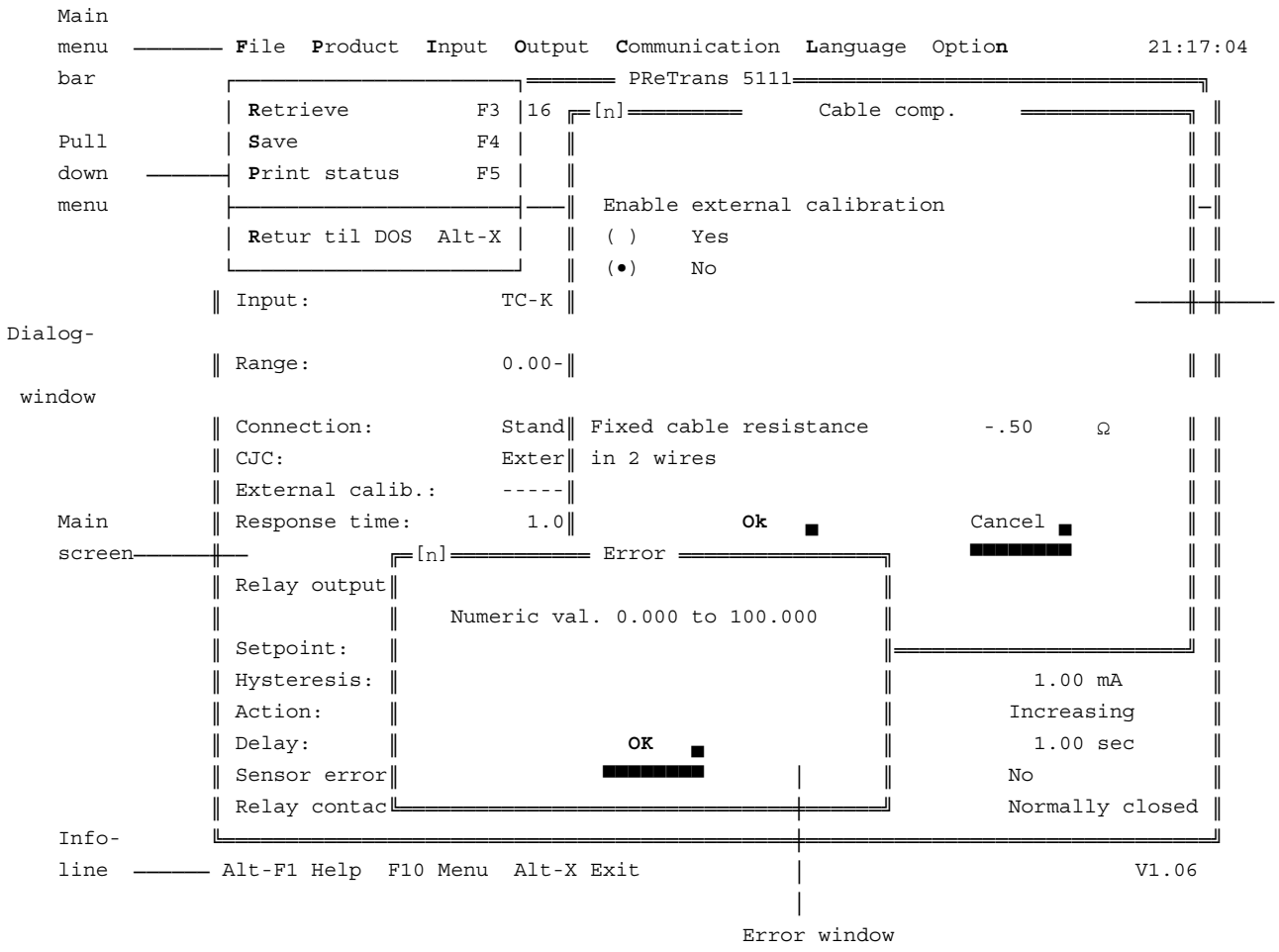
The INI file is created the first time PReset is exited or transferred from the previous PReset installation:

PRESET.INI PReset initialisation file

Always remember to create a working copy of the PReset diskette before installation starts. Please consult your DOS-manual for copying procedure.

2.3 The PReset menu

To understand PReset, the illustration below may be useful:



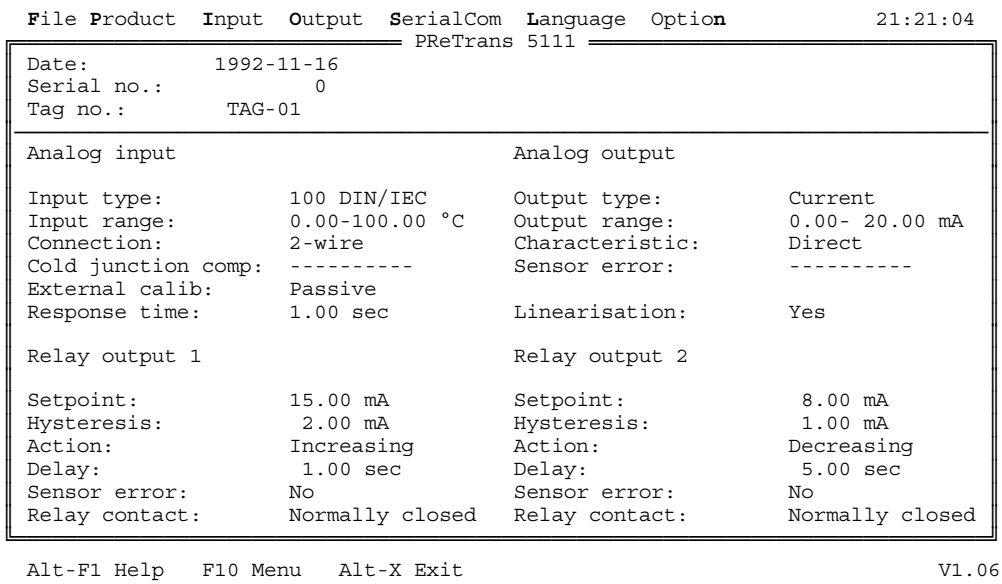
The upper **menu bar** contains **the main menu**. Selecting a submenu causes the corresponding **pull-down menu** to appear.

Selecting a parameter from a pull-down menu often calls for a **dialog window** presenting additional information.

Entering non valid data causes an **Error window** to appear.

The **Info line** in the bottom of the screen contains helpful information like e.g.: Alt-X Exit.

When not covered by pull-down windows, dialog windows or error windows the main screen will contain transmitter data as shown below:



2.4 Navigating in PReset

There are several ways to move around in the PReset environment. For the inexperienced user a combination of the arrow keys and the Enter and Escape keys is recommended, whereas the experienced user will benefit from using the single letter commands, the hot-keys and, particularly, a mouse.

All four methods will be illustrated in the following example, but for the rest of the manual only the Arrow-Enter-Escape combination will be shown.

To select the English language option from the main status screen use one of the following methods:

1) Arrow keys
   Press F10 to get to the menu bar
   Move to the Language menu using the ← → arrows
   Press Enter to activate the pull-down menu
   Move to English using the ← →arrow keys
   Press Enter to activate the English language

2) Single letter commands
   Press Alt-L to open the language pull-down menu
   Press E to activate the English language

3) Hot keys
   Press Shift-F2 to activate the English language

4) Mouse
   Click Language to open the language pull-down menu
   Click English to activate the English language

A list of available hot keys is shown in appendix A.

3 Menu bar

All pull-down menus are listed in the menu bar in the top of the screen.

Pressing "F10" will indicate cursor position in the menu bar.

Move the cursor to the desired function by operating "← →".

Open the pull-down menu by pressing CR.

The cursor is moved to a function within the pull-down menu by operating "↑ ↓".

Main menu function may also be changed when the cursor is positioned in a pull-down menu by operating "← →".

Return to the menu bar by executing one of the functions in the pull-down menu and press "F10" again. To remove a pull-down menu press "Escape".

3.1 "File": Retrieve or store a file.

3.1.1. Delete - delete a specific setup file from disk.
Move the cursor to "Delete" and press CR. The dialog window "Delete a file" will appear.

Use "Tab" to select from menu options and press CR.

"Name" enter file name to be deleted or enter new directory name to change directory.

"Files" lists files of the current directory.
Select file by operating "↑ ↓".

"OK" deletes the file specified.

"Cancel" returns to the main screen.

"Help" Not implemented.

3.1.2. Open - retrieve a specific setup file from disk.
Move the cursor to "Open" and press CR. The dialog window "Open a file" will appear.

Use "TAB" to select from menu options and press CR.

"Name" enter file name to be retrieved or enter new directory name to change directory.

"Files" lists files of the current directory.
Select file by operating "↑ ↓".

"Open" opens the file specified. The main screen is updated.

"Cancel" return to the main screen.

"Help" not implemented.

3.1.3. Save - store current setup file.
Move the cursor to "Save" and press CR. The dialog window "Save a file" will appear.

Use "TAB" to select from menu options and press CR.

"Name" enter file name to be stored or enter new directory name to change directory.

"Files" lists files of the current directory.
Select file by operating "↑ ↓".

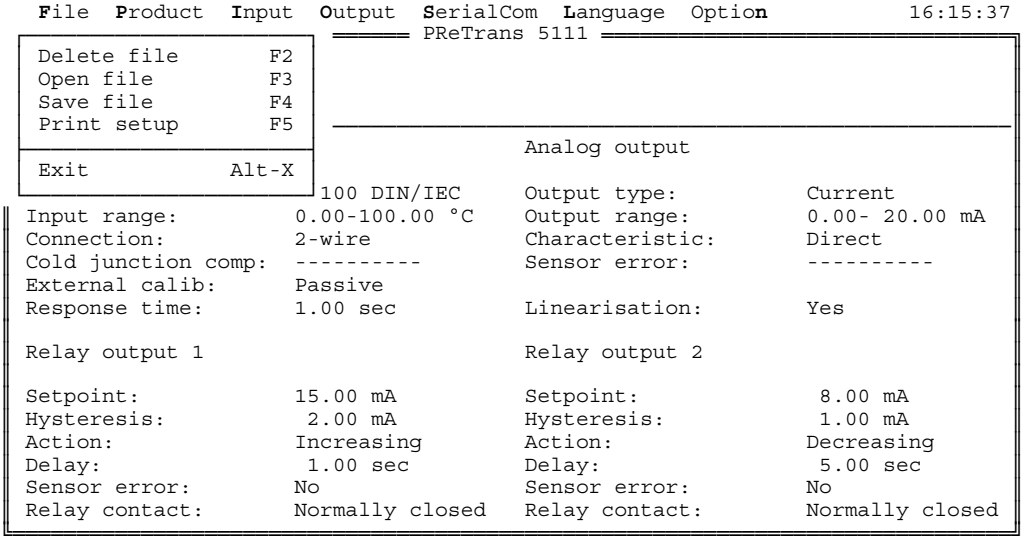
"OK" stores the current file and returns to main screen.

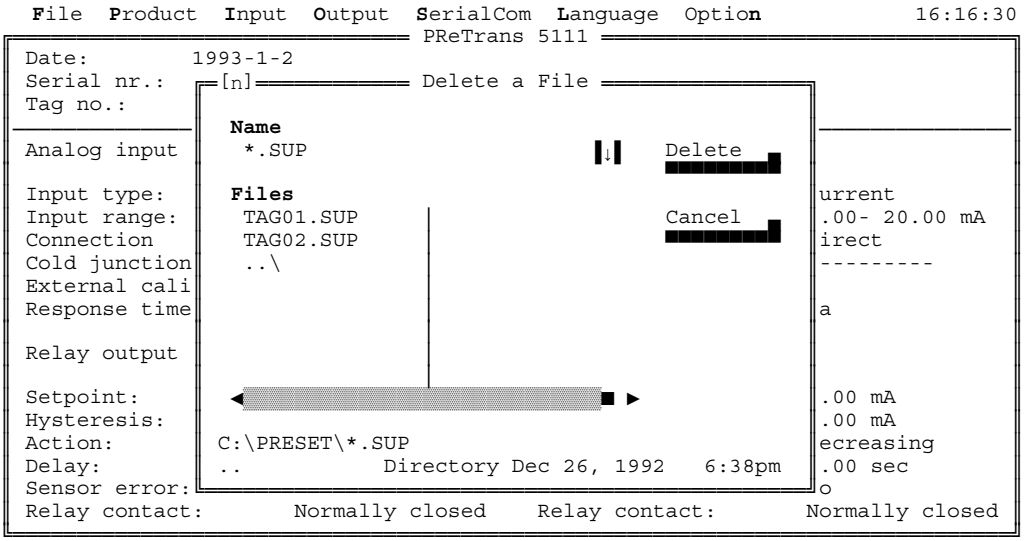
"Cancel" returns to main menu.

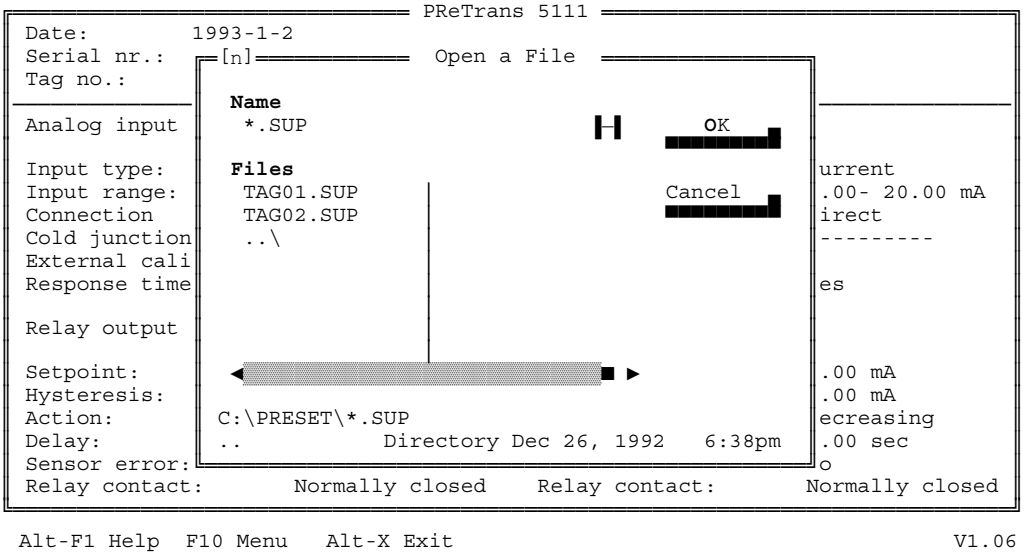
"Help" Not implemented.

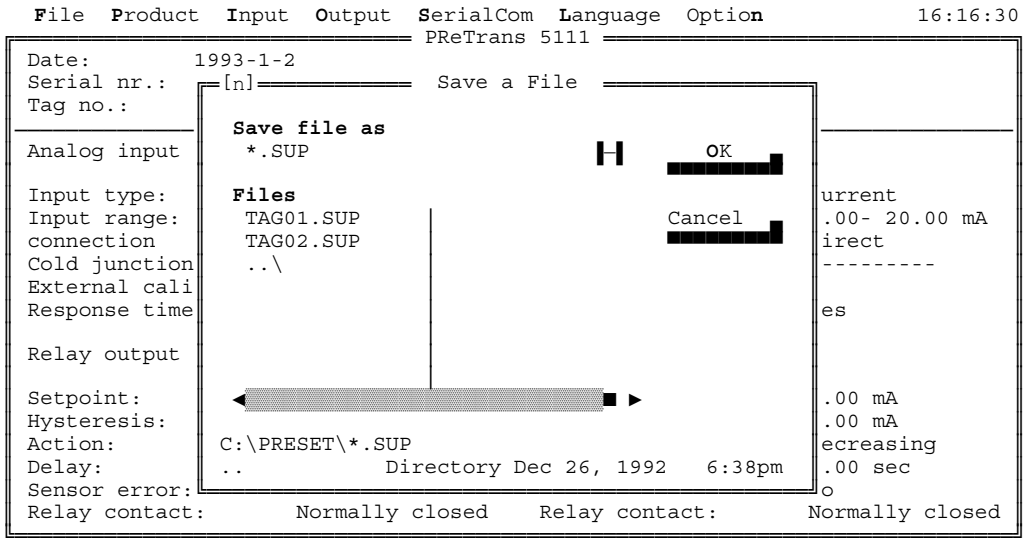
3.1.4. Print - printout of all parameters in the current file.

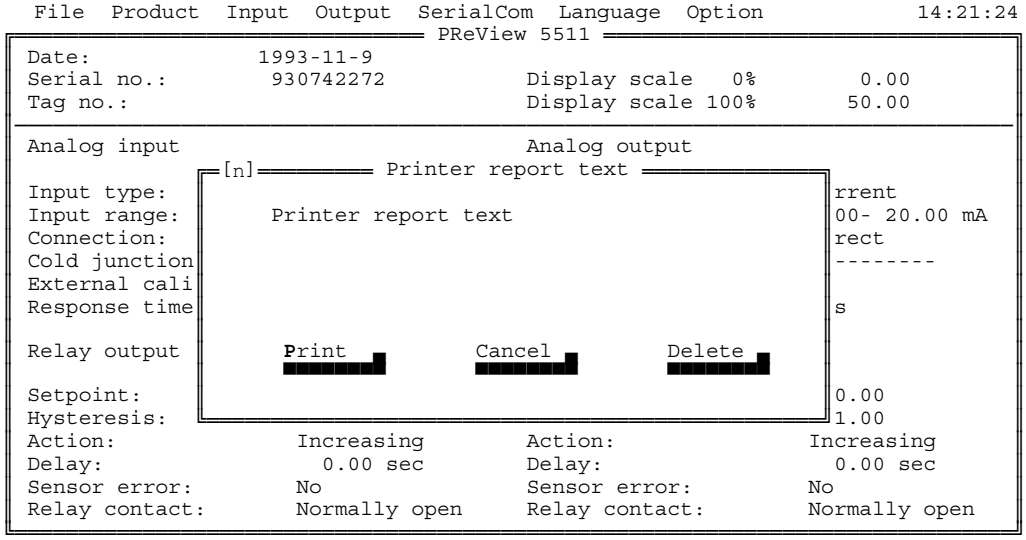
3.1.5. Exit - return to DOS.


File Product Input Output SerialCom Language Option 16:15:37
PReTrans 5111
Delete file F2
Open file F3
Save file F4
Print setup F5
Exit Alt-X
Analog output
100 DIN/IEC
Output type: Current
Input range: 0.00-100.00 °C
Output range: 0.00- 20.00 mA
Connection: 2-wire
Characteristic: Direct
Cold junction comp: ----------
Sensor error: ----------
External calib: Passive
Response time: 1.00 sec
Linearisation: Yes
Relay output 1
Relay output 2
Setpoint: 15.00 mA
Setpoint: 8.00 mA
Hysteresis: 2.00 mA
Hysteresis: 1.00 mA
Action: Increasing
Action: Decreasing
Delay: 1.00 sec
Delay: 5.00 sec
Sensor error: No
Sensor error: No
Relay contact: Normally closed
Relay contact: Normally closed
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 16:16:30
PReTrans 5111
Date: 1993-1-2
Serial nr.:
Tag no.:
[n] Delete a File
Name
*.SUP
Delete
Files
TAG01.SUP
TAG02.SUP
..\
Cancel
C:\PRESET*.SUP
.. Directory Dec 26, 1992 6:38pm
Analog input
Input type:
Input range:
Connection
Cold junction
External cali
Response time
Relay output
Setpoint:
Hysteresis:
Action:
Delay:
Sensor error:
Relay contact: Normally closed
Relay contact: Normally closed
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 16:16:30
PReTrans 5111
Date: 1993-1-2
Serial nr.:
Tag no.:
[n] Open a File
Name
*.SUP
OK
Files
TAG01.SUP
TAG02.SUP
..\
Cancel
C:\PRESET*.SUP
.. Directory Dec 26, 1992 6:38pm
Analog input
Input type:
Input range:
Connection
Cold junction
External cali
Response time
Relay output
Setpoint:
Hysteresis:
Action:
Delay:
Sensor error:
Relay contact: Normally closed
Relay contact: Normally closed
Alt-F1 Help F10 Menu Alt-X Exit V1.06





3.2 "Product": Select product type

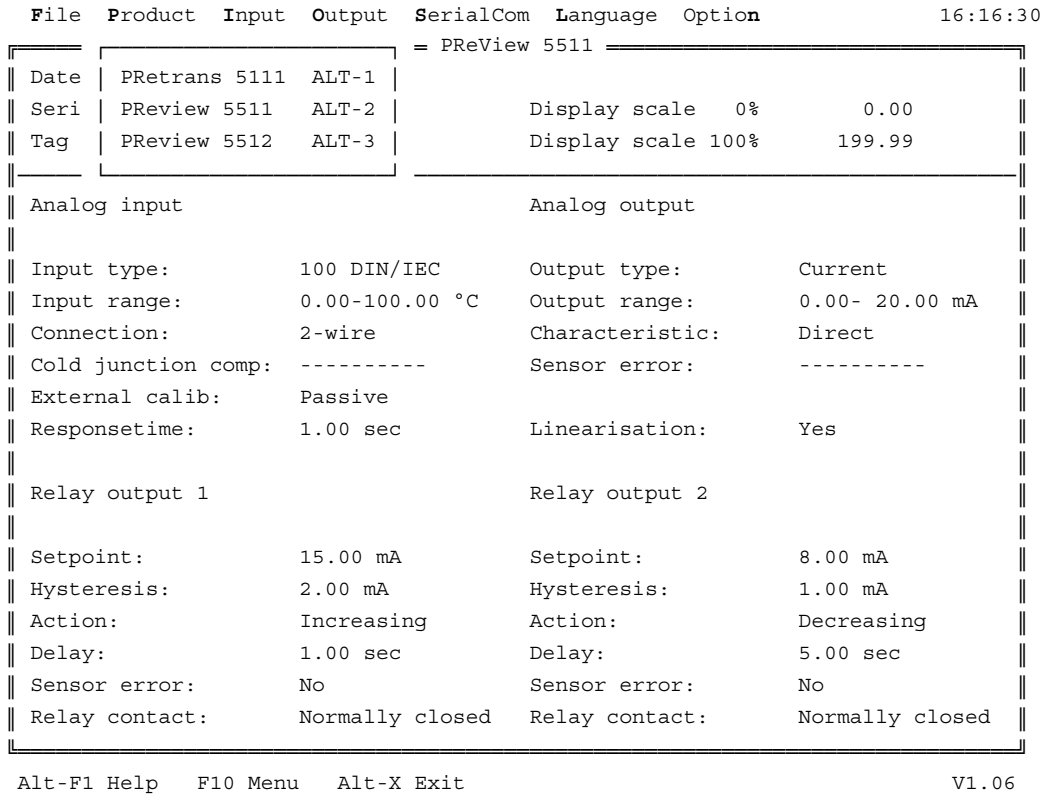
The pull down window contains a list of the available product types. Move the cursor to product type and press CR. The main screen is updated accordingly.

1. PRetrans 5111

2. PReview 5511

3. PReview 5512

Press "F10" for menu bar access.


File Product Input Output SerialCom Language Option 16:16:30
= PReView 5511
Date | PRetrans 5111 ALT-1 |
Seri | PReview 5511 ALT-2 |
Tag | PReview 5512 ALT-3 |
Display scale 0% 0.00
Display scale 100% 199.99
Analog input
Analog output
Input type: 100 DIN/IEC
Input range: 0.00-100.00 °C
Connection: 2-wire
Cold junction comp: ----------
External calib: Passive
Responsetime: 1.00 sec
Output type: Current
Output range: 0.00- 20.00 mA
Characteristic: Direct
Sensor error: ----------
Linearisation: Yes
Relay output 1
Setpoint: 15.00 mA
Hysteresis: 2.00 mA
Action: Increasing
Delay: 1.00 sec
Sensor error: No
Relay contact: Normally closed
Relay output 2
Setpoint: 8.00 mA
Hysteresis: 1.00 mA
Action: Decreasing
Delay: 5.00 sec
Sensor error: No
Relay contact: Normally closed
Alt-F1 Help F10 Menu Alt-X Exit
V1.06

3.3 "Input": Select analog input

The pull-down window contains a list of all available input types, which can be handled by the transmitter.

The input types are grouped as follows;

1.Thermocouple.

2.Pt100 and Ni100 sensor.

3.Linear resistor.

4.Voltage (V).

5.Current (mA).

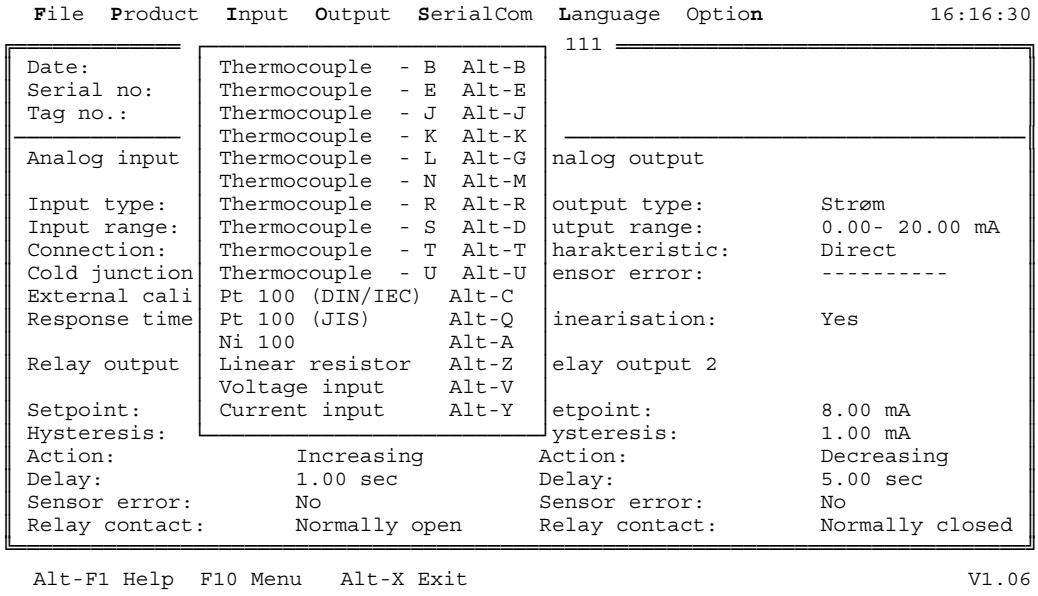
Move the cursor to the desired input type by operating the "↑↓" and press CR. The corresponding dialog window will appear.

Use the "TAB" key to get access to the individual parameters in the dialog window.
The cursor highlights the current parameter which may be changed.

Certain parameters contain a list of options. Move the cursor to the desired option by operating the "−−" and press "TAB". Move the cursor to "OK" and press CR to accept the total input setup.

In case an input parameter is out of range an error window will appear and inform of the limits of the current input type.

Certain parameters will cause additional dialog windows to appear on the screen. Move the cursor by operating the "TAB" key and press CR.



3.3.1 Thermocouple input

Move the cursor to the desired TC by operating the "↑ ↓" and press CR.
Enter Input temperature - 0%.
Enter Input temperature - 100%.

Response time:
Enter Response time in seconds.

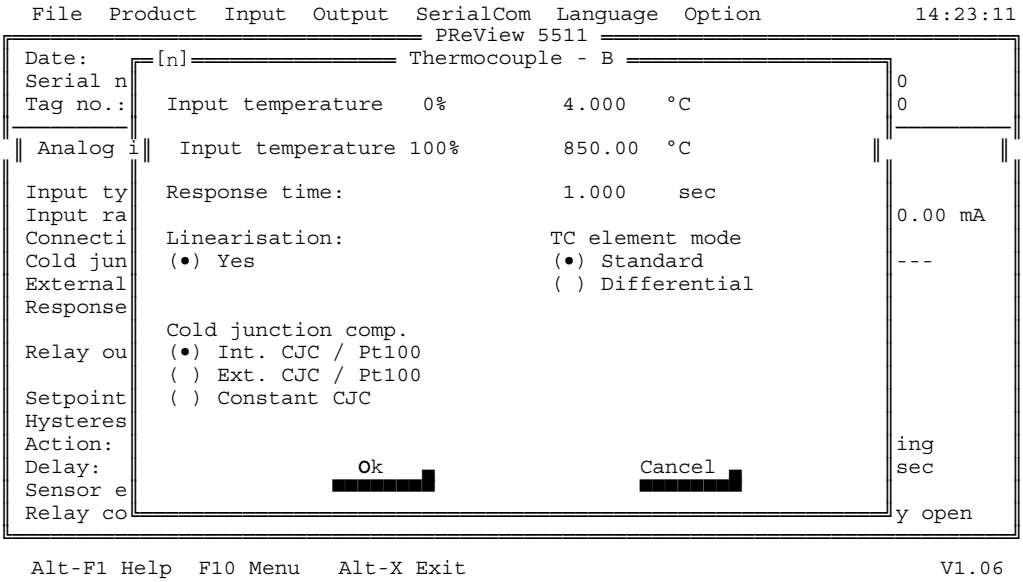
Linearisation:
"Yes" the input signal will be linearised with respect to temperature.
"No" the input signal will not be linearised.

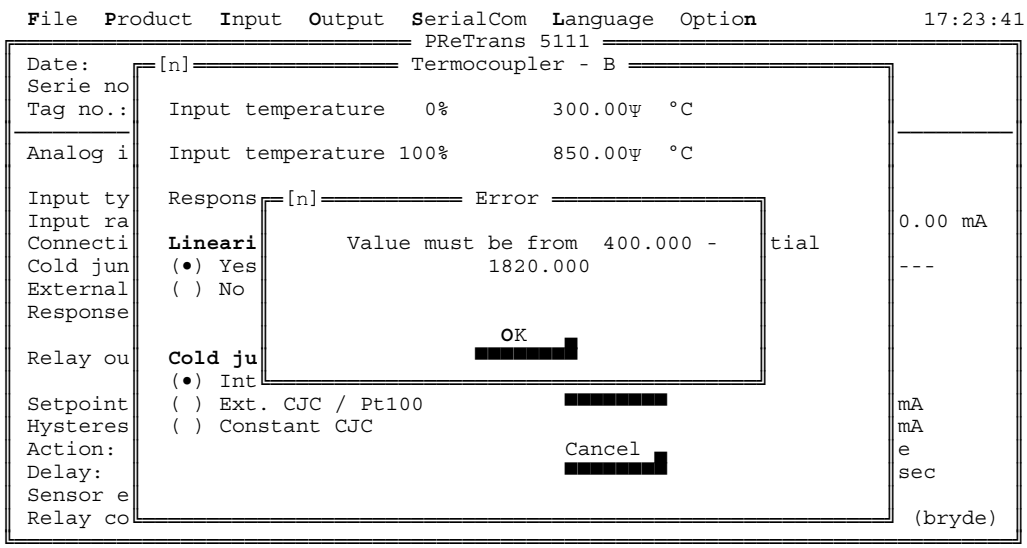
TC element mode:
"Standard" one TC is connected.
"Differential" two TCs in series are connected. This option will release an additional dialog window "Lowest reference temp.". Enter the lowest reference temperature.

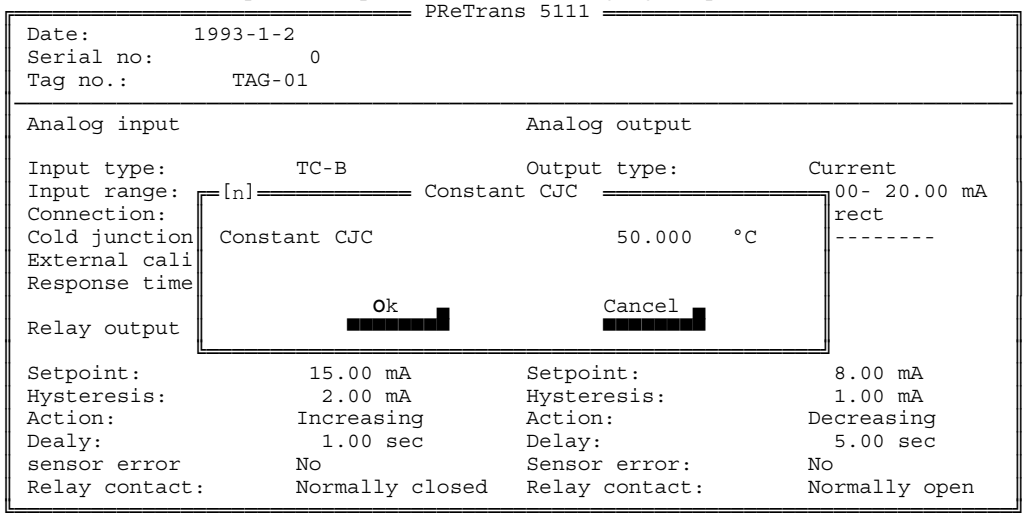
Cold junction comp.:
"Int. CJC/Pt100" select Internal CJC/Pt100 when the CJC terminal with a built-in Pt100 sensor is connected to the transmitter.

"Ext. CJC/Pt100" select External CJC/Pt100 when the cold junction is placed remote from the transmitter. A Pt100 sensor is placed at the cold junction. This option will release an additional dialog window "Cable compensation". Select external calibration enable or enter fixed cable resistance to be compensated.

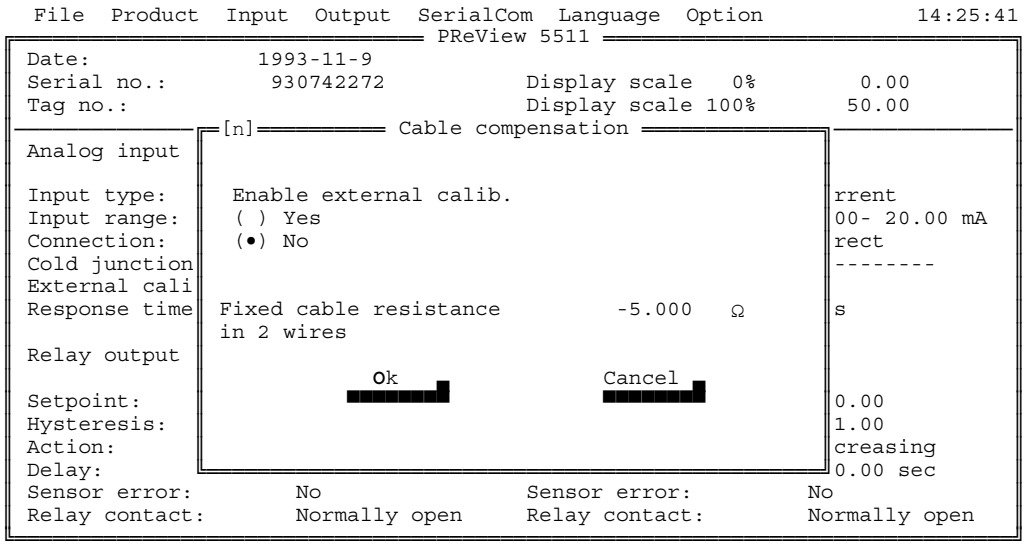
"Constant CJC" select constant CJC for fixed temperature at the cold junction. This option will release an additional dialog window "Constant CJC". Enter the cold junction temperature.

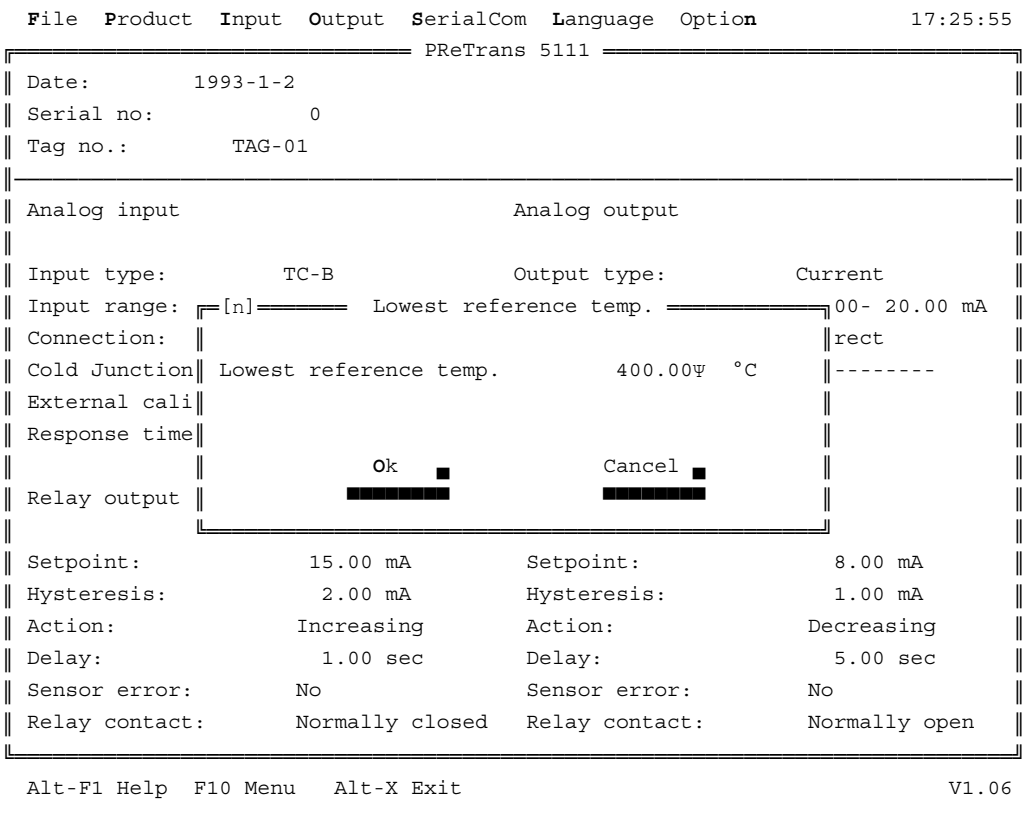



File Product Input Output SerialCom Language Option 17:23:41
PReTrans 5111
Termocoupler - B
Input temperature 0% 300.00Ψ °C
Input temperature 100% 850.00Ψ °C
Error
Value must be from 400.000 - 1820.000
OK
Lineari
(•) Yes
( ) No
Cold ju
(•) Int
( ) Ext. CJC / Pt100
( ) Constant CJC
Cancel
0.00 mA
---
mA
mA
e
sec
(bryde)
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Outtput SerialCom Language Option 17:24:54
PReTrans 5111
Date: 1993-1-2
Serial no: 0
Tag no.: TAG-01
Analog input
Analog output
Input type: TC-B
Output type: Current
Input range:
Connection:
Cold junction
External cali
Response time
Relay output
Constant CJC
Constant CJC 50.000 °C
Ok
Cancel
00- 20.00 mA
rect

Setpoint: 15.00 mA
Hysteresis: 2.00 mA
Action: Increasing
Dealy: 1.00 sec
sensor error No
Relay contact: Normally closed
Setpoint: 8.00 mA
Hysteresis: 1.00 mA
Action: Decreasing
Delay: 5.00 sec
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 14:25:41
PReView 5511
Date: 1993-11-9
Serial no.: 930742272
Tag no.:
Display scale 0% 0.00
Display scale 100% 50.00
Analog input
Input type:
Input range:
Connection:
Cold junction
External cali
Response time
Relay output
Cable compensation
Enable external calib.
( ) Yes
(•) No
Fixed cable resistance -5.000 Ω
in 2 wires
Ok
Cancel
rrent
00- 20.00 mA
rect
----
s
0.00
1.00
creasing
0.00 sec
Setpoint:
Hysteresis:
Action:
Delay:
Sensor error: No
Relay contact: Normally open
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 17:25:55
PReTrans 5111
Date: 1993-1-2
Serial no: 0
Tag no.: TAG-01
Analog input
Analog output
Input type: TC-B
Output type: Current
Input range:
00- 20.00 mA
Connection:
rect
Cold Junction

External cali
Response time
Relay output
[n] Lowest reference temp.
Lowest reference temp. 400.00Ψ °C
Ok
Cancel
Setpoint: 15.00 mA
Hysteresis: 2.00 mA
Action: Increasing
Delay: 1.00 sec
Sensor error: No
Relay contact: Normally closed
Setpoint: 8.00 mA
Hysteresis: 1.00 mA
Action: Decreasing
Delay: 5.00 sec
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit
V1.06

3.3.2 Pt100 and Ni100 input

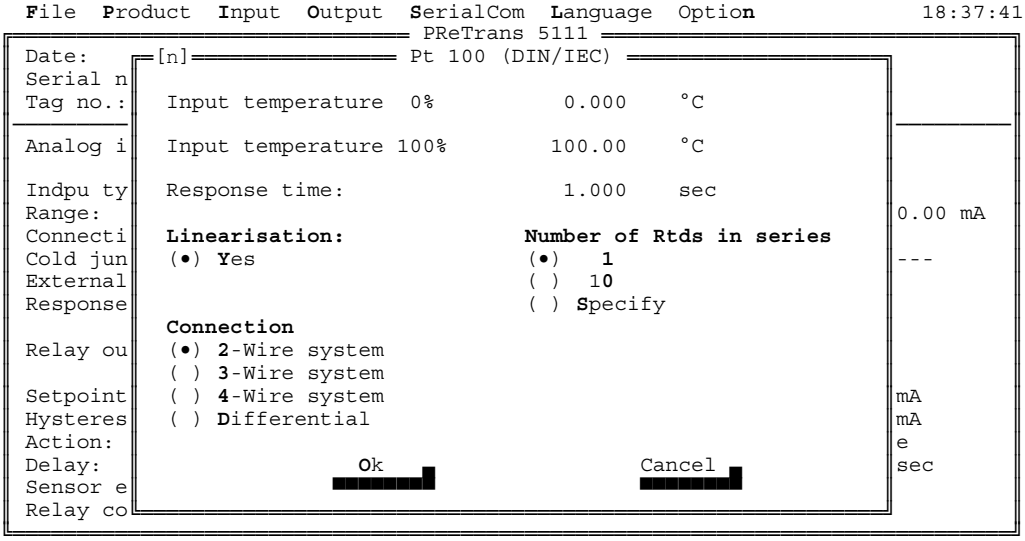
Select desired RTD-sensor.
Enter Input temperature - 0%.
Enter Input temperature - 100%.

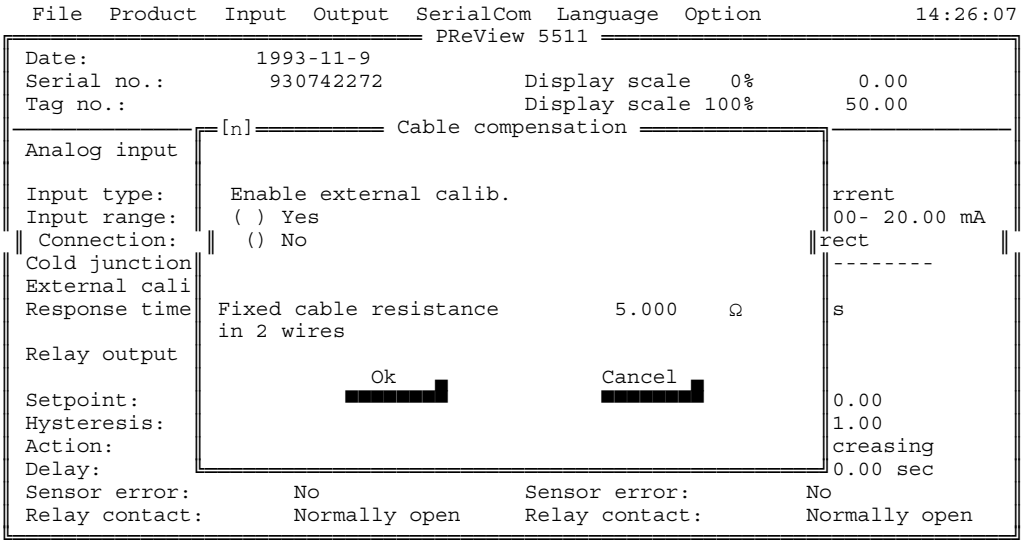
Response time:
Enter Response time in seconds.

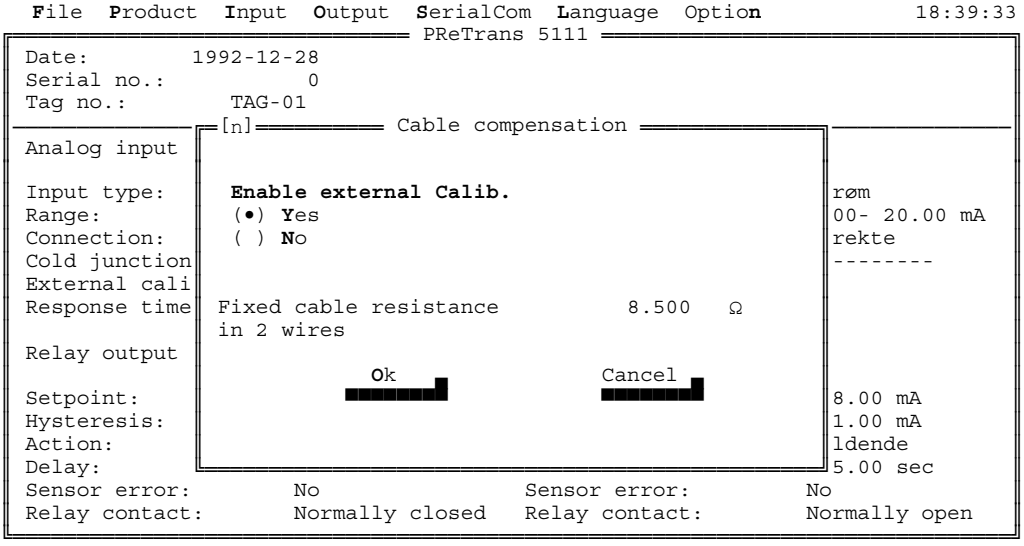
Linearisation:
"Yes" the input signal will be linearised with respect to temperature.
"No" the input signal will not be linearised.

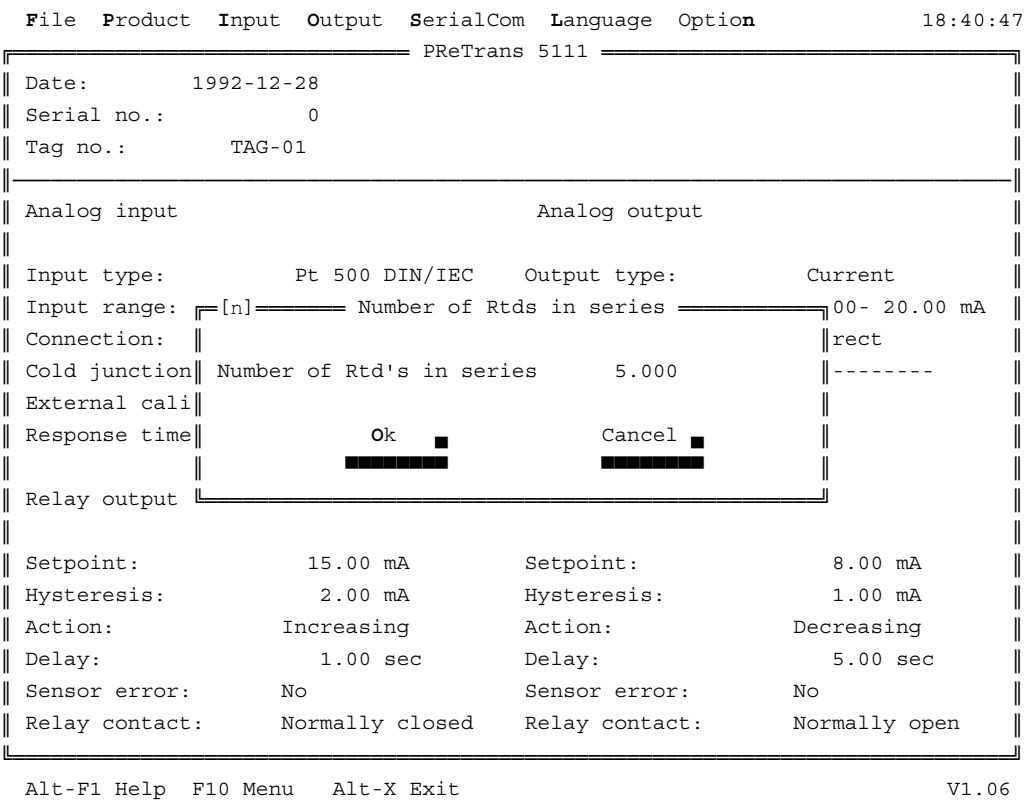
Number of Rtd's in series:
"1" one Pt100 sensor is connected.
"10" 10 Pt100 sensors are connected in series which equals one Pt1000 sensor.
"Specify" this option releases an additional dialog window "Number of Rtd's in series". Enter the number of Rtd's. The number must be within 1-25 or 1-0,25 for parallel connection.

Connection:
"2-wire system" 2-wire cable is connected. This option releases an additional dialog window "Cable compensation". Select external calibration enable/disable, or enter a fixed cable resistance for compensation.
"3-wire system" 3-wire cable is connected. Automatic cable compensation is performed.
"4-wire system" 4-wire cable is connected. Automatic cable compensation is performed.
"Differential" two Rtd's are connected for differential temperature measurement. This option releases an additional dialog window "Cable compensation". Select external calibration enable/disable, or enter a fixed cable resistance for compensation.


File Product Input Output SerialCom Language Option 18:37:41
PReTrans 5111
Pt 100 (DIN/IEC)
Input temperature 0% 0.000 °C
Input temperature 100% 100.00 °C
Response time: 1.000 sec
Linearisation:
(•) Yes
Number of Rtds in series
(•) 1
( ) 10
( ) Specify
Connection
(•) 2-Wire system
( ) 3-Wire system
( ) 4-Wire system
( ) Differential
Ok
Cancel
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 14:26:07
PReView 5511
Date: 1993-11-9
Serial no.: 930742272
Tag no.:
Display scale 0% 0.00
Display scale 100% 50.00
Cable compensation
Enable external calib.
( ) Yes
() No
Fixed cable resistance 5.000 Ω
in 2 wires
Ok
Cancel
Sensor error: No
Relay contact: Normally open
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 18:39:33
PReTrans 5111
Date: 1992-12-28
Serial no.: 0
Tag no.: TAG-01
Cable compensation
Enable external Calib.
(•) Yes
( ) No
Fixed cable resistance 8.500 Ω
in 2 wires
Ok
Cancel
Sensor error: No
Relay contact: Normally closed
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 18:40:47
PReTrans 5111
Date: 1992-12-28
Serial no.: 0
Tag no.: TAG-01
Analog input
Analog output
Input type: Pt 500 DIN/IEC
Output type: Current
Input range:
Connection:
Cold junction
External cali
Response time
Relay output
[n] Number of Rtds in series
Number of Rtd's in series 5.000
Ok
Cancel
00- 20.00 mA
rect

Setpoint: 15.00 mA
Hysteresis: 2.00 mA
Action: Increasing
Delay: 1.00 sec
Sensor error: No
Relay contact: Normally closed
Setpoint: 8.00 mA
Hysteresis: 1.00 mA
Action: Decreasing
Delay: 5.00 sec
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit
V1.06

3.3.3 Linear resistor

Specify input resistance.
Enter Input resistance - 0%.
Enter Input resistance - 100%.

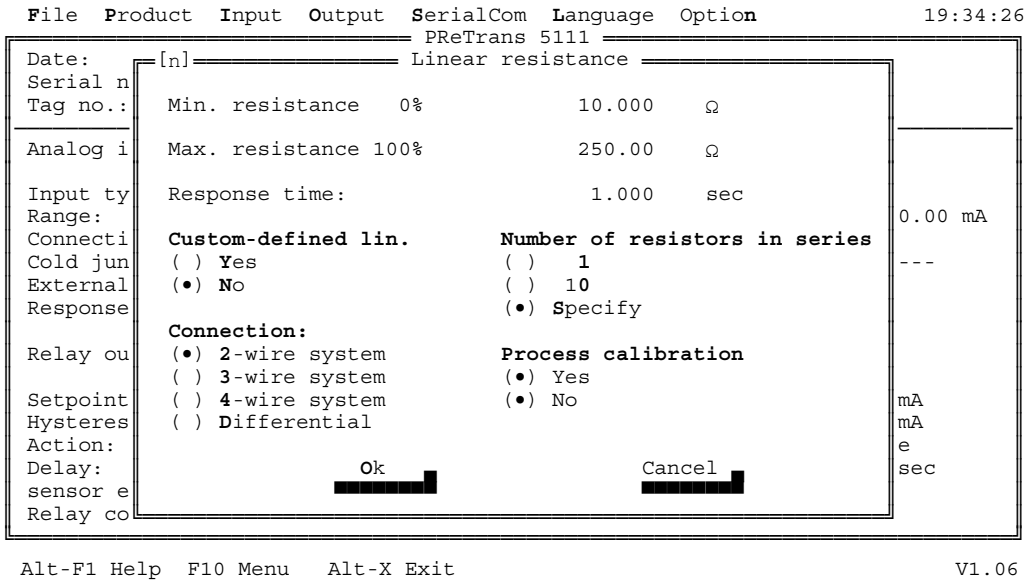
Response time:
Enter Response time in seconds.

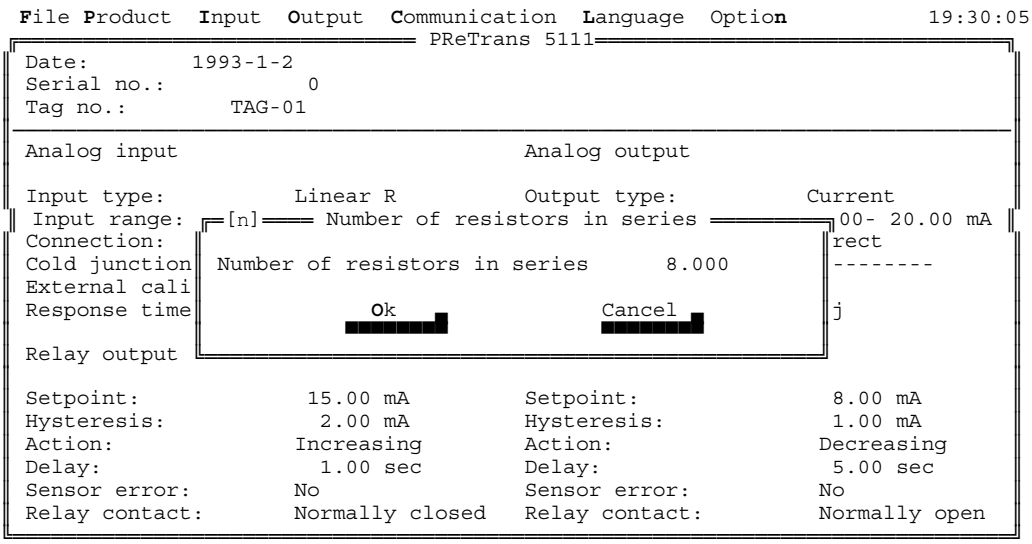
Custom-defined linearisation:
"Yes", see section 4.
"No", output is resistance linear.

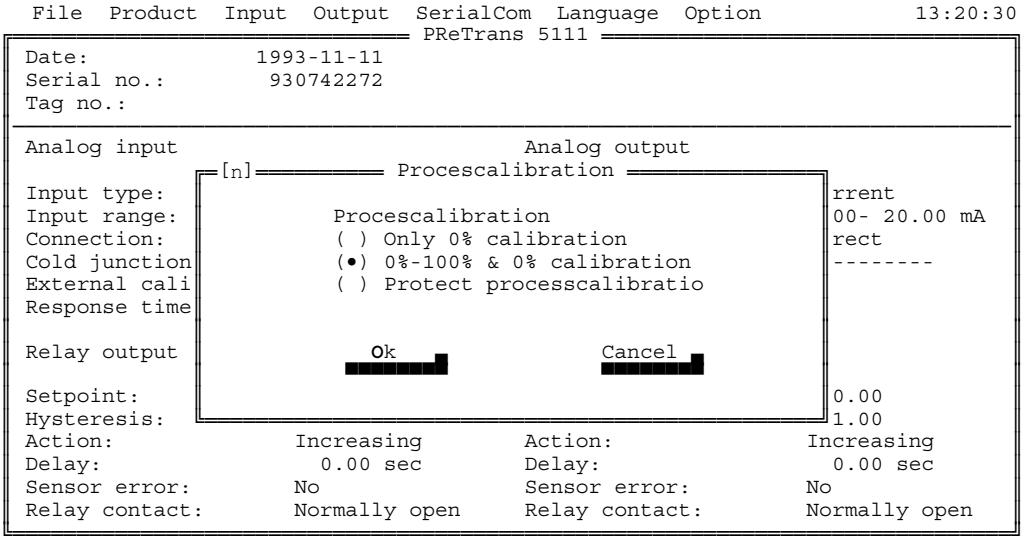
Number of R's in series:
"1" one resistor is connected.
"10" 10 resistors are connected in series.
"Specify" this option releases an additional dialog window "Number of R's in series". Enter the number of R's. The number must be within 1-25 or 1-0,25 for parallel connection.

Connection:
"2-wire system" 2-wire cable is connected. This option releases an additional dialog window "Cable compensation". Select external calibration enable/disable, or enter a fixed cable resistance for compensation.
"3-wire system" 3-wire cable is connected. Automatic cable compensation is performed.
"4-wire system" 4-wire cable is connected. Automatic cable compensation is performed.
"Differential" two R's are connected for Ω differential measurement. This option releases an additional dialog window "Cable compensation". Select external calibration enable/disable, or enter a fixed cable resistance for compensation.

Process calibration:
"Yes" see section 5.
"No" input range must be specified in PReset 5000.







3.3.4 Voltage input

Response time:

Enter Response time in seconds.

Voltage input:

"Specify" Enter any voltage input range not listed in the standard ranges. This option releases an additional dialog window "Voltage input":

Enter Input voltage - 0%
Enter Input voltage - 100%.

Input voltage must be within -250 to +250 Volts limits.

"Bridge input" Enter input voltage for bridge application. This option releases an additional dialog window "Voltage input".

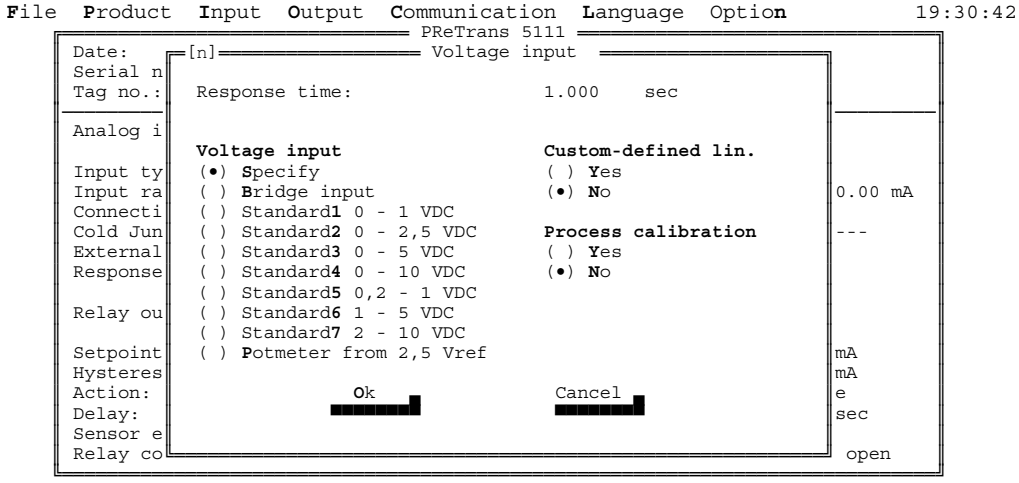
Enter Input voltage - 0%
Enter Input voltage - 100%.

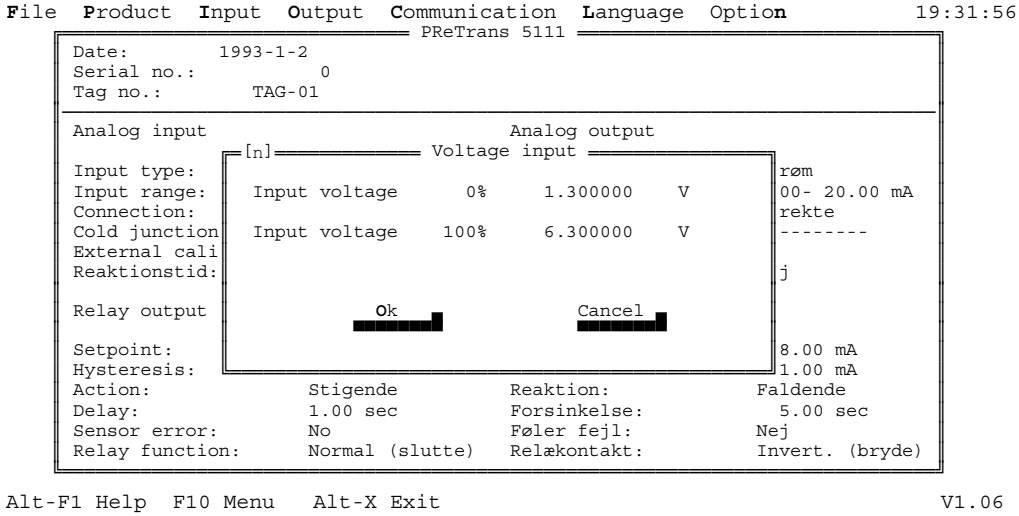
Input voltage must be within the transmitters configuration limit.

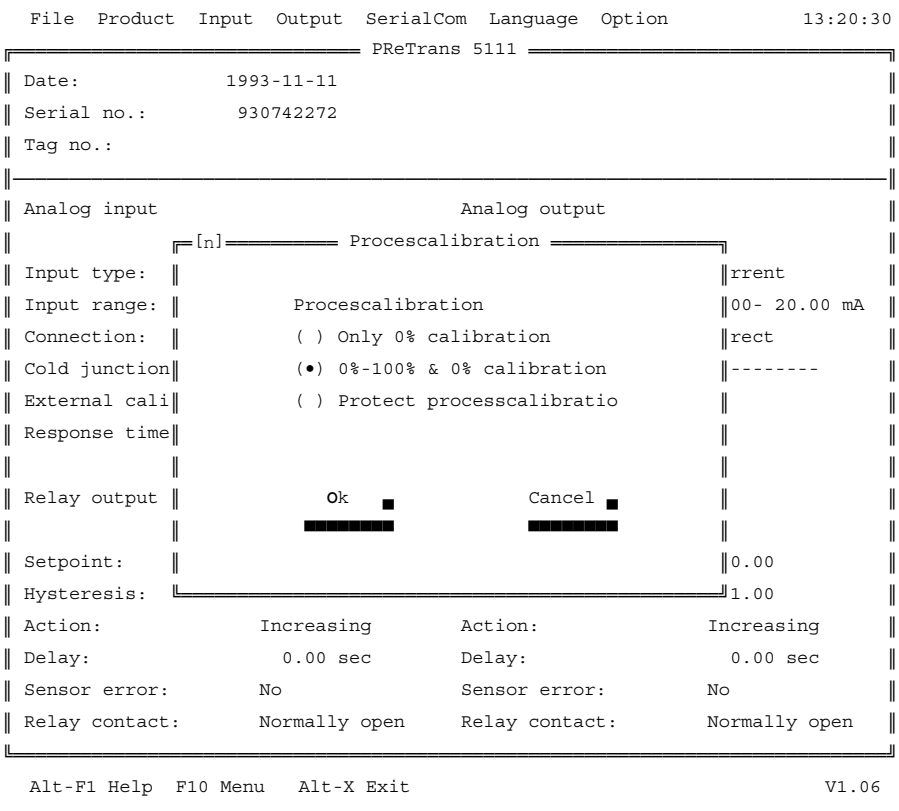
"Standard 0-1 VDC"	input range 0-1V.
"Standard 0-2.5 VDC"	input range 0-2.5 V.
"Standard 0-5 VDC"	input range 0-5 V.
"Standard 0-10 VDC"	input range 0-10 V.
"Standard 0.2-1 VDC"	input range 0.2-1 V.
"Standard 1-5 VDC"	input range 1-5 V.
"Standard 2-10 VDC"	input range 2-10 V.
"3-wire potentiometer"	input range 0-2.5 V direct from potentiometer.

Custom-defined linearisation:
"Yes" see section 4.
"No" output is voltage linear.

Process calibration:
"Yes" see section 5.
"No" input range must be specified in PReset 5000.






File Product Input Output SerialCom Language Option 13:20:30
PReTrans 5111
Date: 1993-11-11
Serial no.: 930742272
Tag no.:
Analog input
Analog output
[n]
Procescalibration
Input type:
Input range:
Connection:
Cold junction
External cali
Response time
Relay output
Setpoint:
Hysteresis:
Action:
Delay:
Sensor error:
Relay contact:
Procescalibration
( ) Only 0% calibration
(•) 0%-100% & 0% calibration
( ) Protect processcalibratio
Ok
Cancel
rrent
00- 20.00 mA
rect

0.00
1.00
Increasing
0.00 sec
No
Normally open
Increasing
0.00 sec
No
Normally open
Alt-F1 Help F10 Menu Alt-X Exit
V1.06

3.3.5 Current input

Response time:
Enter Response time in seconds.

Current input:
"Specify" Enter any current input range not listed in the standard ranges. This option releases an additional dialog window "Current input":

Enter Input current - 0%
Enter Input current - 100%.

Input current must be within the transmitters configuration limits.

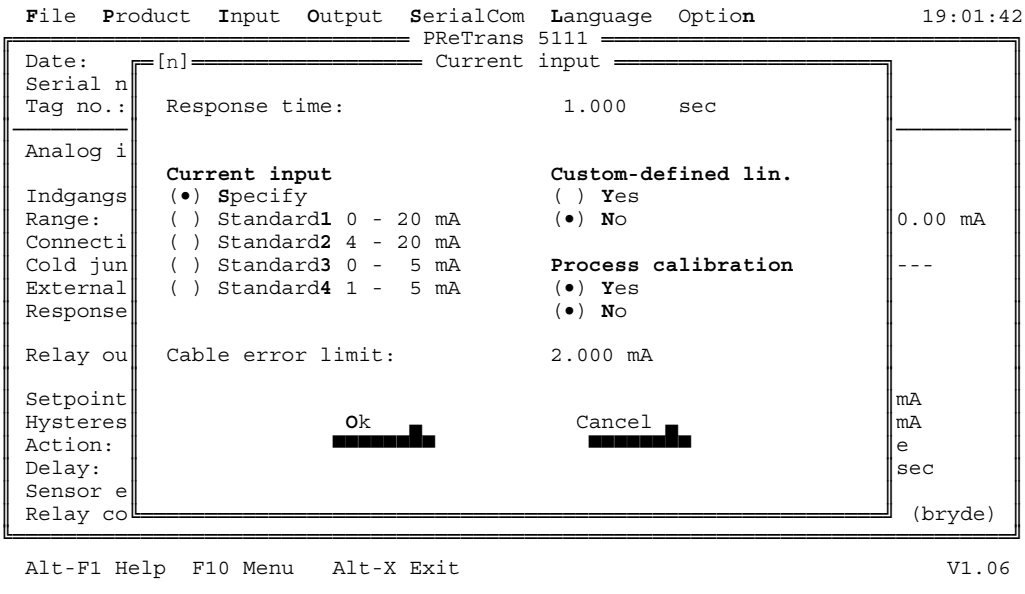
"Standard 0-20 mA"	input range 0-20 mA.
"Standard 4-20 mA"	input range 4-20 mA.
"Standard 0-5 mA"	input range 0-5 mA.
"Standard 1-5 mA"	input range 1-5 mA.

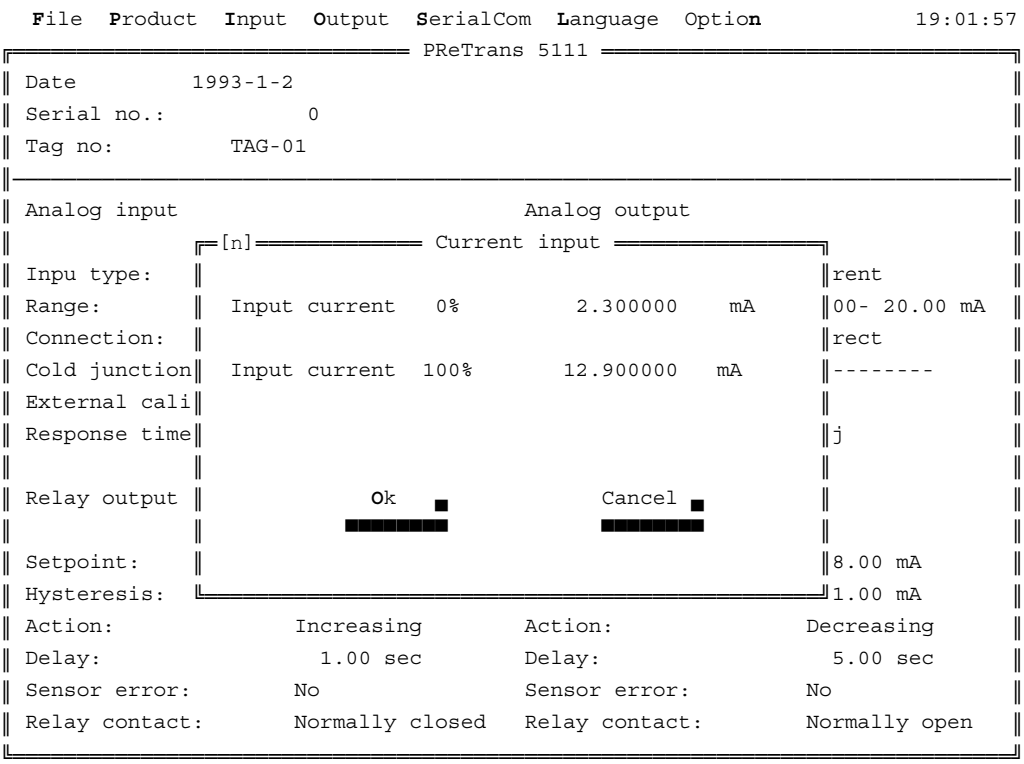
Custom-defined linearisation:
"Yes" see section 4.
"No" output is current linear.

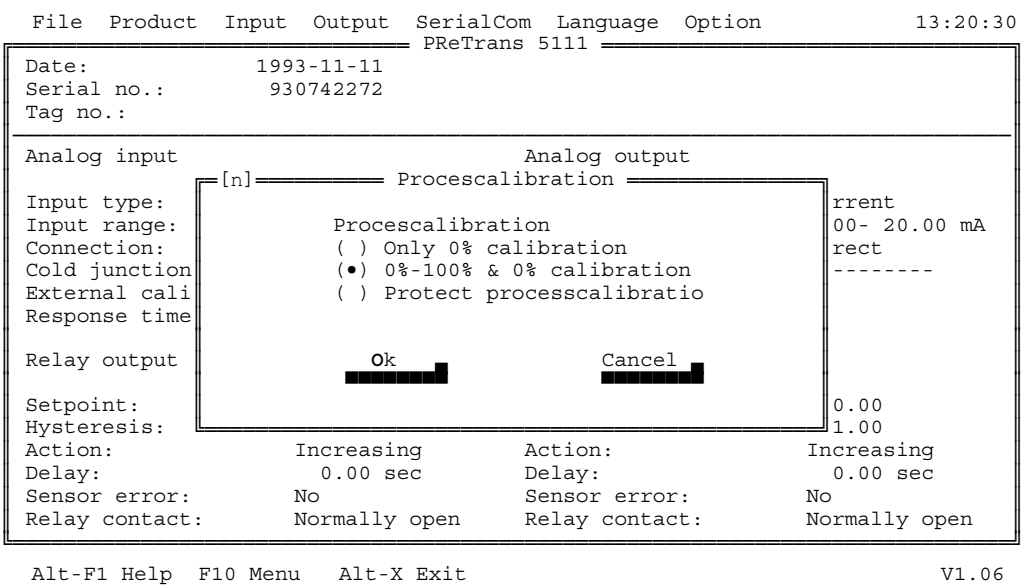
Process calibration:
"Yes" see section 5.
"No" input range must be specified in PReset 5000.

Cable error detection limit:
For current input 4-20mA, cable error detection limit may be defined. Enter error detection limit in mA (value must be below 4mA).

If active sensor error detection on analog- or relay output will activate when input signal is below the error detection limit.




File Product Input Output SerialCom Language Option 19:01:57
PReTrans 5111
Date 1993-1-2
Serial no.: 0
Tag no: TAG-01
Analog input
Analog output
[n] Current input
Inpu type:
Range:
Connection:
Cold junction
External cali
Response time
Relay output
Setpoint:
Hysteresis:
Input current 0% 2.300000 mA
Input current 100% 12.900000 mA
Ok
Cancel
rent
00- 20.00 mA
rect
----
j
8.00 mA
1.00 mA
Action: Increasing
Delay: 1.00 sec
Sensor error: No
Relay contact: Normally closed
Action: Decreasing
Delay: 5.00 sec
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06


File Product Input Output SerialCom Language Option 13:20:30
PReTrans 5111
Date: 1993-11-11
Serial no.: 930742272
Tag no.:
Analog input
Analog output
[n] Procescalibration
Input type:
Input range:
Connection:
Cold junction
External cali
Response time
Relay output
Setpoint:
Hysteresis:
Procescalibration
( ) Only 0% calibration
(•) 0%-100% & 0% calibration
( ) Protect processcalibratio
Ok
Cancel
rrent
00- 20.00 mA
rect

0.00
1.00
Action: Increasing
Delay: 0.00 sec
Sensor error: No
Relay contact: Normally open
Action: Increasing
Delay: 0.00 sec
Sensor error: No
Relay contact: Normally open
Alt-F1 Help F10 Menu Alt-X Exit V1.06

3.4 "Output" Select output

The pull-down menu contains the outputs, to which the transmitter can be configured.

The output options are grouped as follows:

1. Analog output.

2. Relay units.

3. Relay output 1.

4. Relay output 2.

5. Display (PReview option only).

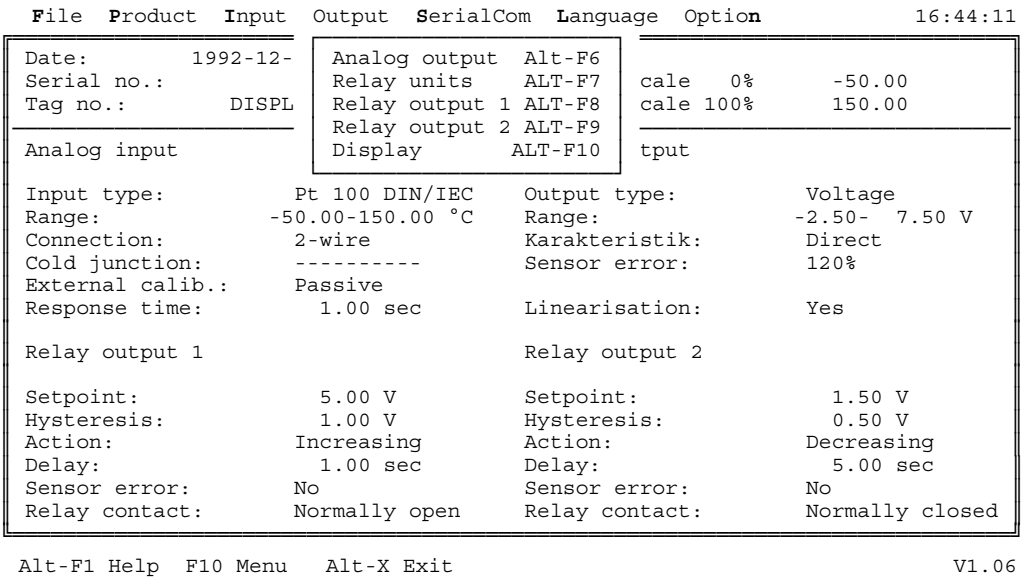
Move the cursor to the desired output type by operating "↑ ↓" and press CR. Hereafter a dialog window dedicated the selection occurs.

Use the "TAB" key to get access to the individual parameters in the dialog window. Only one function may be changed at a time. When the cursor is placed on the function, data can be changed.

Certain parameters contain a list of options, move the cursor to the desired option by operating the "↑ ↓" and press "TAB". Move the cursor to "OK" and press "CR" to accept the total input setup.

In case a measurement range is out of range an error window will appear and inform the limits of current output type.

Certain parameters will cause additional dialog windows to appear on the screen, move the cursor by operating the "TAB" key and press "CR".



3.4.1 Analog output

Define analoge output.

Output type:

"Voltage output" this option will release an additional dialog window "Voltage output". See section 0

"Current output" this option releases an additional dialog window "Current output". See section 0

Sensor error:

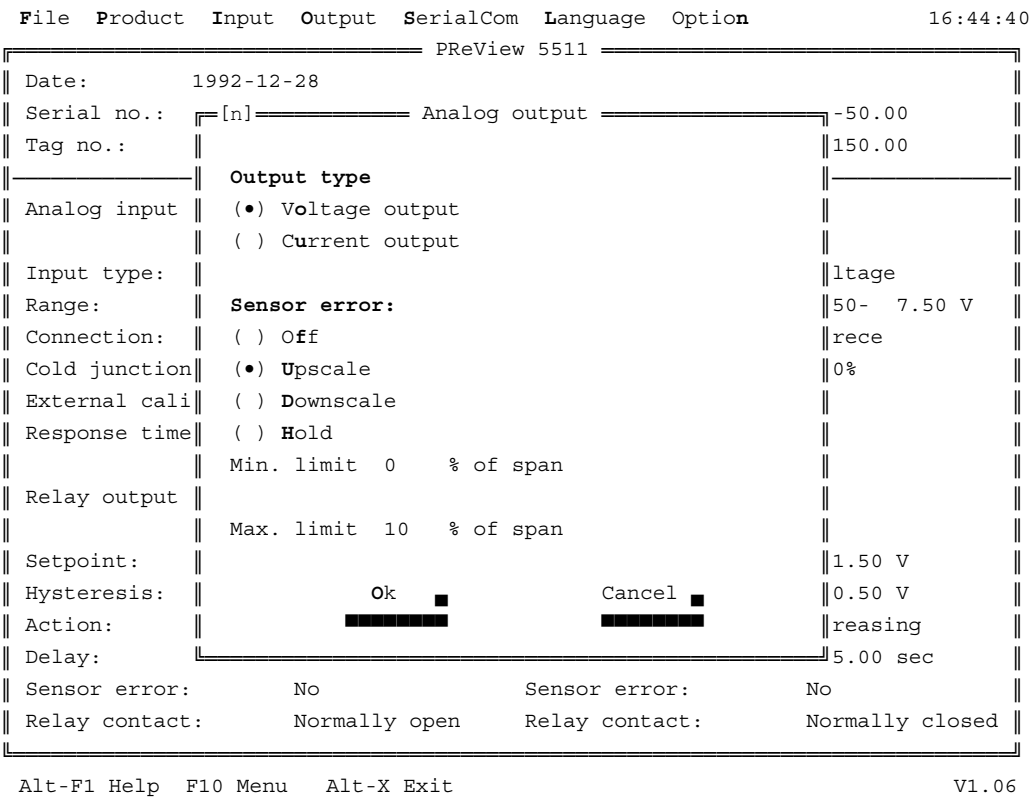
Sensor error (open circuit) on the following sensors may be detected: Thermocouple (TC), Pt100 and Ni100 (RTD), and linear resistor. In case of sensor error detection the analog output will react in one of the following ways:

"Off" no function.
"Upscale" output will upscale to 120% of max. value in case of sensor error.
"Downscale" output will downscale to 0% of min. value in case of sensor error.
"Hold" output will remain at the level present 3 updates old.

Lower and upper overload limits:

"Min. limit" Enter in % of span the amount the output signal may be below the defined 0% level, in case the input signal level is below its minimum level.

"Max. limit" Enter in % of span the amount the output may exceed the defined 100% level, in case the input signal level is above its maximum level.



3.4.1.1 Voltage output

Voltage output is defined.

Voltage output:

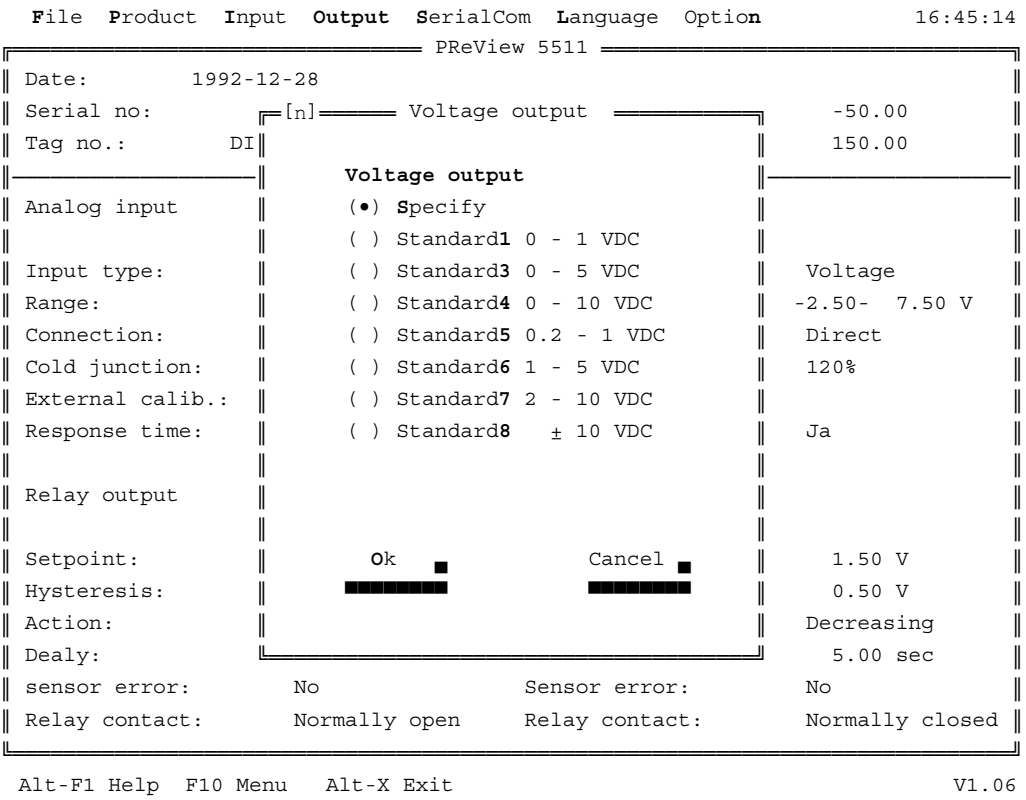
"Specify" Enter any voltage output range not listed in the standard ranges. This option releases an additional dialog window "Voltage output":

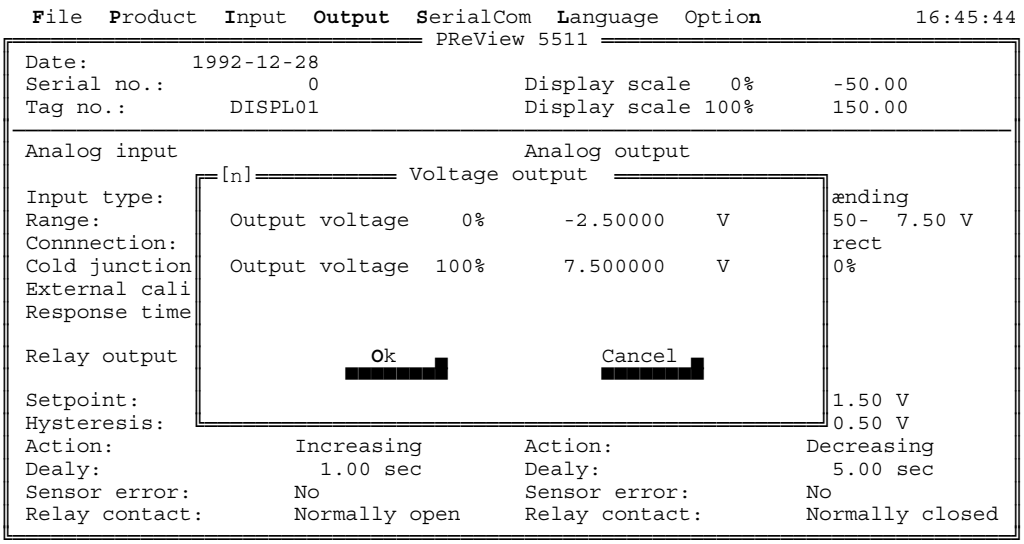
Enter Output voltage - 0%
Enter Output voltage - 100%.

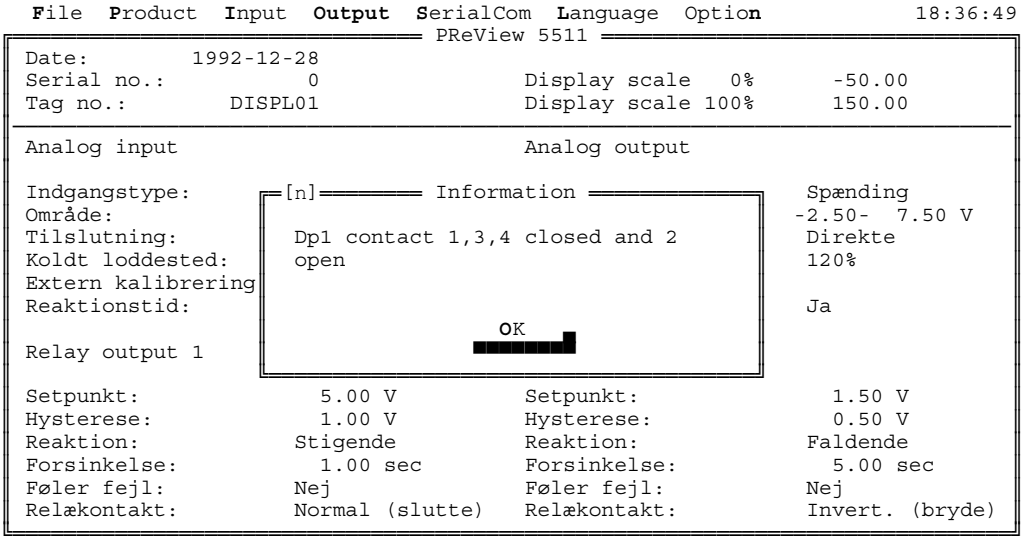
Output voltage must be within the transmitters configuration limits.

"Standard 0-1 VDC"	output voltage range 0-1 V.
"Standard 0-5 VDC"	output voltage range 0-5 V.
"Standard 0-10 VDC"	output voltage range 0-10 V.
"Standard 0.2-1 VDC"	output voltage range 0.2-1 V.
"Standard 1-5 VDC"	output voltage range 1-5 V.
"Standard 2-10 VDC"	output voltage range 2-10 V.
"Standard ±10 VDC"	output voltage range ± 10 V.

Any of the above options will release the "Information" window. Set the DIP-switches accordingly.







3.4.1.2 Current output

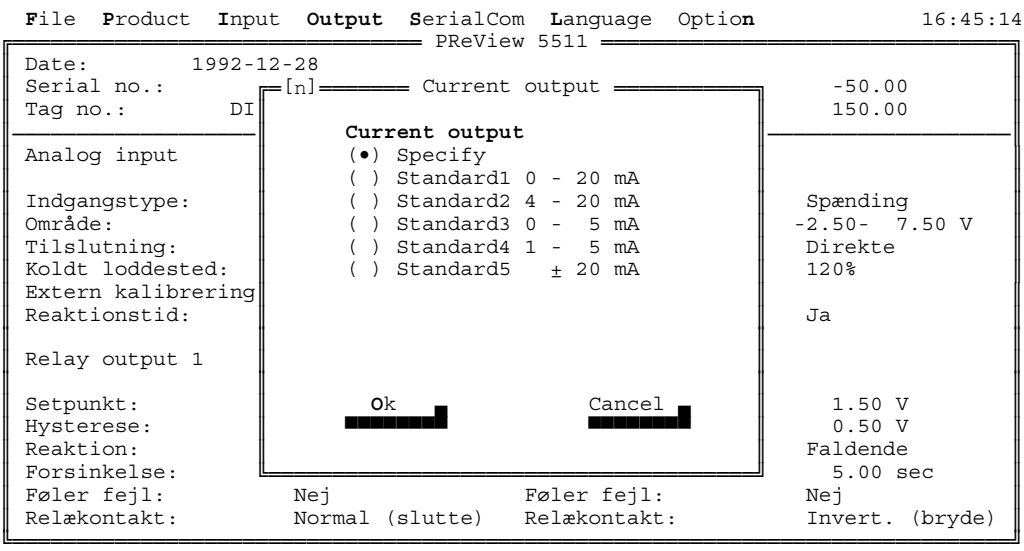
"Specify" Enter any current output range not listed in the standard ranges. This option releases an additional dialog window "Current output":

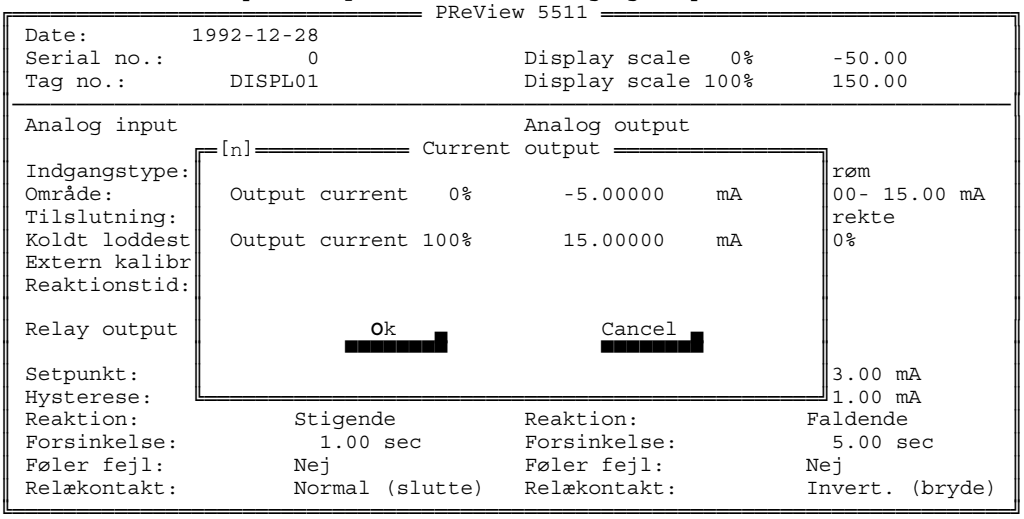
Enter Output current - 0%
Enter Output current - 100%.

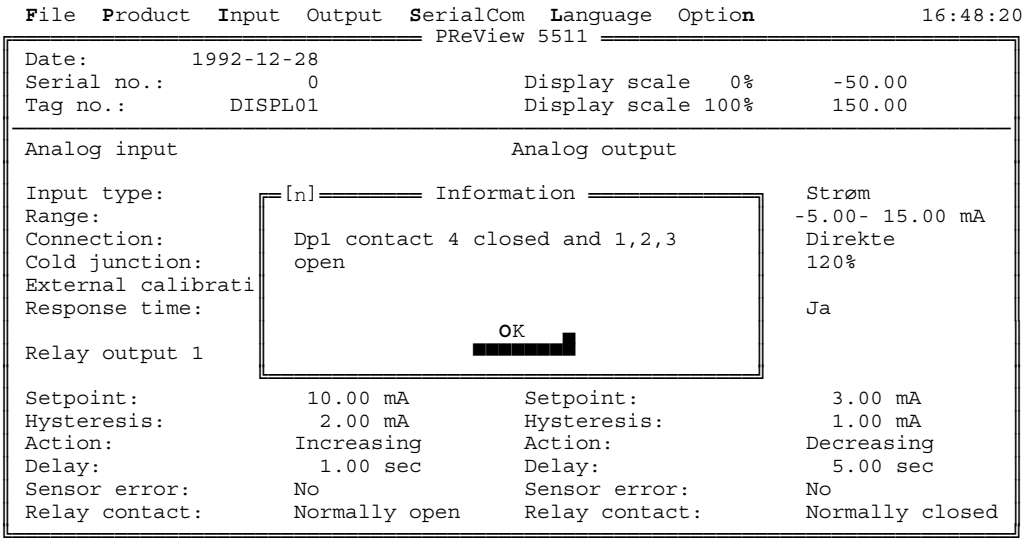
Output current must be within the transmitters configuration limits.

"Standard 0-20 mA"	output range 0-20 mA.
"Standard 4-20 mA"	output range 4-20 mA.
"Standard 0-5 mA"	output range 0-5 mA.
"Standard 1-5 mA"	output range 1-5 mA.
"Standard ± 20 mA"	output range ± 20 mA.

Any of the above options will release the "Information" window. Set the DIP-switches accordingly.


File Product Input Output SerialCom Language Option 16:45:14
PReView 5511
Date: 1992-12-28
Serial no.:
Tag no.: DI
[n] Current output
Current output
(•) Specify
( ) Standard1 0 - 20 mA
( ) Standard2 4 - 20 mA
( ) Standard3 0 - 5 mA
( ) Standard4 1 - 5 mA
( ) Standard5 ± 20 mA
Ok
Cancel
-50.00
150.00
Analog input
Indgangstype: Spænding
Område: -2.50- 7.50 V
Tilslutning: Direkte
Koldt loddested: 120%
Extern kalibrering
Reaktionstid: Ja
Relay output 1
Setpunkt: 1.50 V
Hysterese: 0.50 V
Reaktion: Faldende
Forsinkelse: 5.00 sec
Føler fejl: Nej Føler fejl: Nej
Relækontakt: Normal (slutte) Relækontakt: Invert. (bryde)
Alt-F1 Help F10 Menu Alt-X Exit V1.02

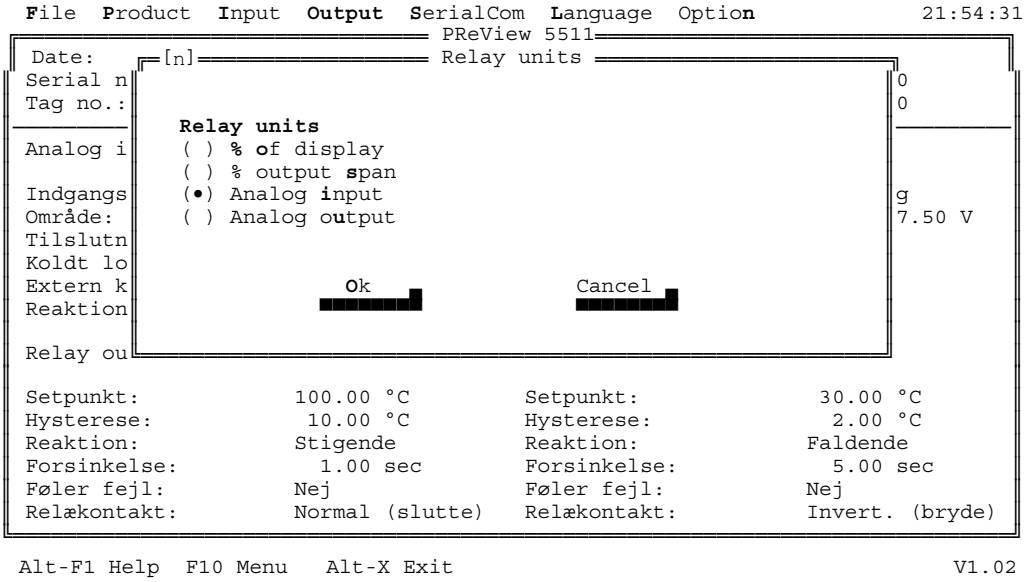

File Product Input Output SerialCom Language Option 16:45:14
PReView 5511
Date: 1992-12-28
Serial no.: 0 Display scale 0% -50.00
Tag no.: DISPL01 Display scale 100% 150.00
Analog input Analog output
[n] Current output
Output current 0% -5.00000 mA
Output current 100% 15.00000 mA
Ok
Cancel
Indgangstype: røm
Område: 00- 15.00 mA
Tilslutning: rekte
Koldt loddest 0%
Extern kalibr
Reaktionstid:
Relay output
Setpunkt: 3.00 mA
Hysterese: 1.00 mA
Reaktion: Stigende Reaktion: Faldende
Forsinkelse: 1.00 sec Forsinkelse: 5.00 sec
Føler fejl: Nej Føler fejl: Nej
Relækontakt: Normal (slutte) Relækontakt: Invert. (bryde)
Alt-F1 Help F10 Menu Alt-X Exit V1.02


File Product Input Output SerialCom Language Option 16:48:20
PReView 5511
Date: 1992-12-28
Serial no.: 0 Display scale 0% -50.00
Tag no.: DISPL01 Display scale 100% 150.00
Analog input Analog output
[n] Information
Dp1 contact 4 closed and 1,2,3 open
OK
Input type: Strøm
Range: -5.00- 15.00 mA
Connection: Direkte
Cold junction: 120%
External calibrati
Response time: Ja
Relay output 1
Setpoint: 10.00 mA Setpoint: 3.00 mA
Hysteresis: 2.00 mA Hysteresis: 1.00 mA
Action: Increasing Action: Decreasing
Delay: 1.00 sec Delay: 5.00 sec
Sensor error: No Sensor error: No
Relay contact: Normally open Relay contact: Normally closed
Alt-F1 Help F10 Menu Alt-X Exit V1.06

3.4.2 Relay units

These options are only available in SYSTEM 5000 units containing relay functions.
Select units and actual value for relay and hysteresis parameters. The following options are available:

% of display (counts)
% output span
Analog input (°C, mA, V, Ω)
Analog output (mA, V)



3.4.3 Relay output 1/2

The following relay output options are available for both relay outputs.

"Relay setpoint" enter setpoint in the selected units.
"Relay hysteresis" enter hysteresis in the selected units.
"Relay delay" enter relay delay in seconds.

Relay action:

"Increasing" relay action for increasing signal level.
"Decreasing" relay action for decreasing signal level.
"Sensor error" relay action for sensor error detection.
"No function" disable relay function.

Relay contact:

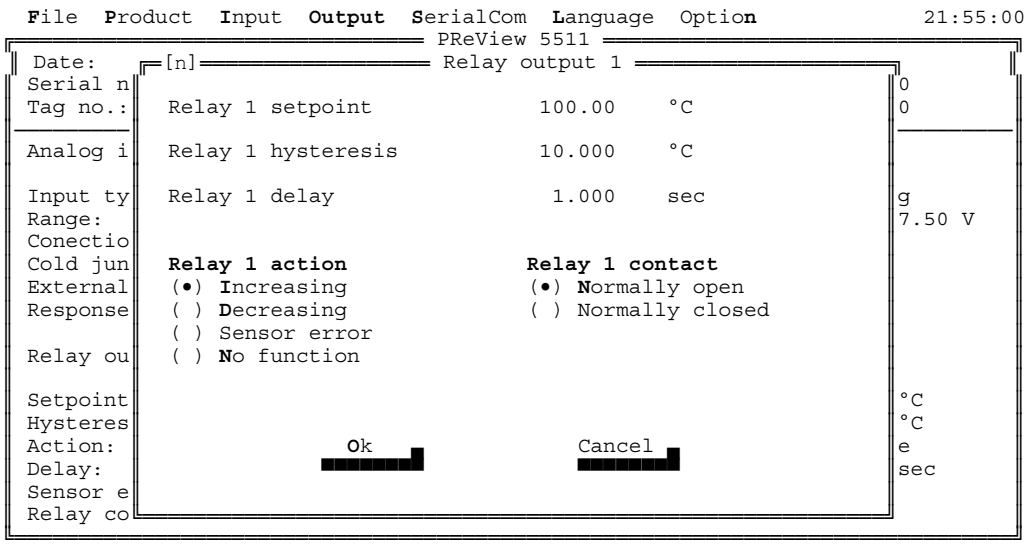
"Normally open" relay contact will make for action (N.O.).
"Normaly closed" relay contact will break for action (N.C.).

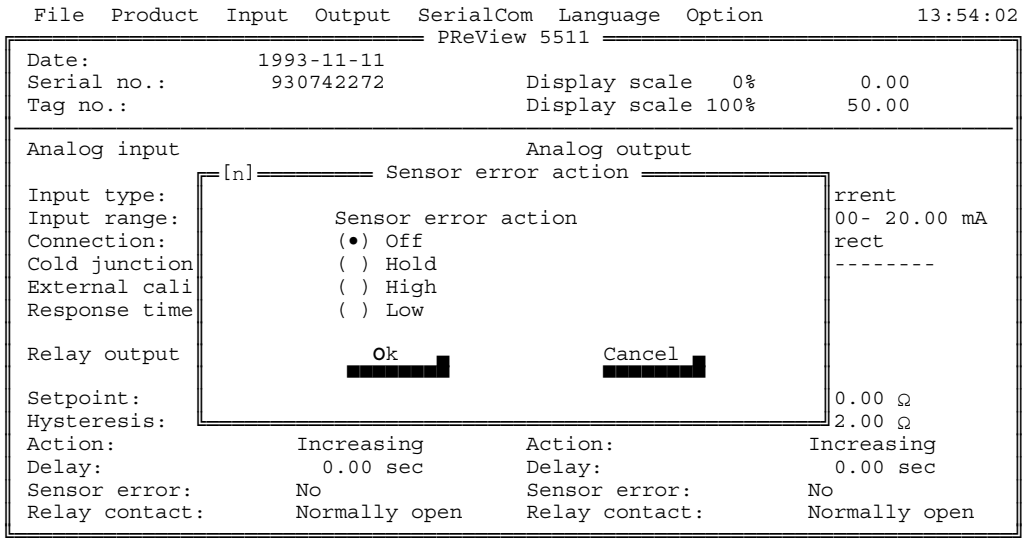
Sensor error action:

Sensor error (open circuit) on the following sensors may be detected: Thermocouple (TC), Pt100 and Ni100 (RTD), and linear resistor. In case of sensor error detection the relay output will react in one of the following ways:

"No function" relay will not react upon sensor error.
"Hold" relay will hold position valid 3 updates old upon sensor error.
"High" if relay function is defined as N.O. relay will activate upon sensor error. If relay function is defined as N.C. relay will deactivate upon sensor error.
"Low" if relay function is defined as N.O. relay will deactivate upon sensor error. If relay function is defined as N.C. relay will activate upon sensor error.

For further details please refer to section 6.0.





3.4.4 Display setup

Scaling:
"Display scale 0%" Enter value in counts, to be displayed at 0% input, incl. decimal point.
"Display scale 100%" Enter value in counts, to be displayed at 100% input, incl. decimal point.

"2, 3, 4 or 5 digits" Enter number of digits in display.

"Display speed" Enter the interval between each display update in msec.

"LED intensity" Enter light intensity on a scale from 0 to 15. 15 is max intensity.

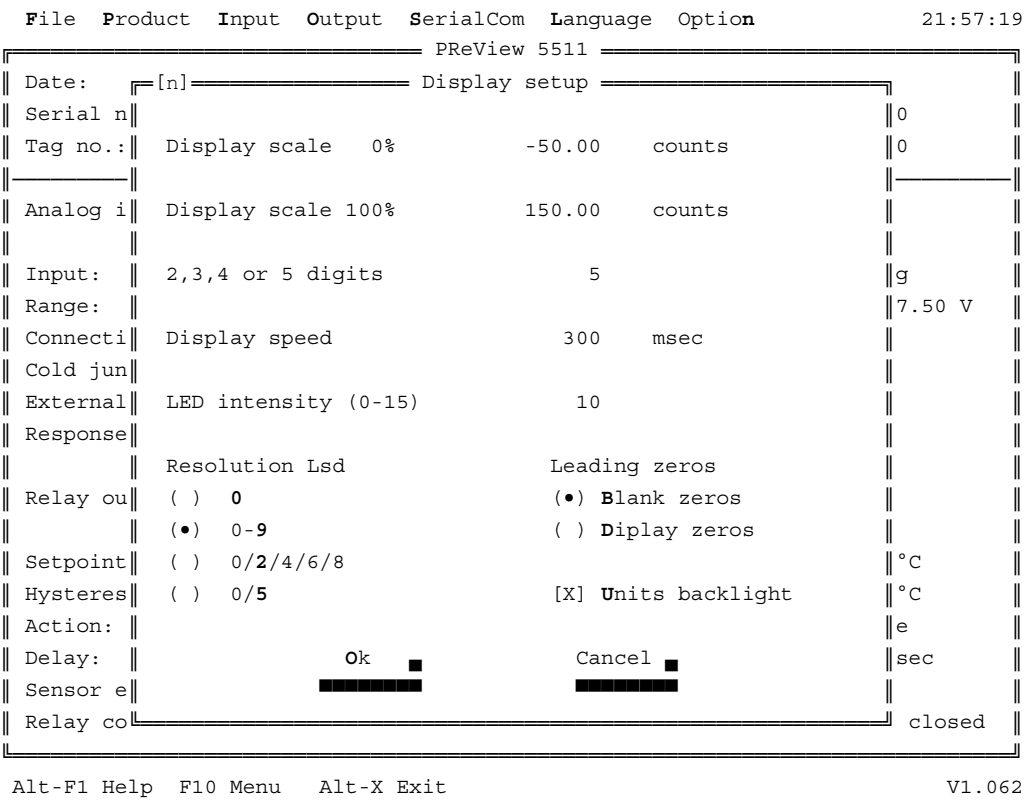
Resolution on least significant digit:
"0" Last digit is zero locked.
"0-9" all counts in last digit available.
"0/2/4/6/8" only even counts in last digit available.
"0/5" only 0 and 5 is available.

Zero blank:

"Blank zeros" zeroes in front of most significant digit are blanked.

"Display zeros" zeroes in front of most significant digit are shown.

"Units backlight" enable/disable the backlight of measurement units, only available on PReview 5511, LED version. Use space bar or mouse to disable/enable backlight.



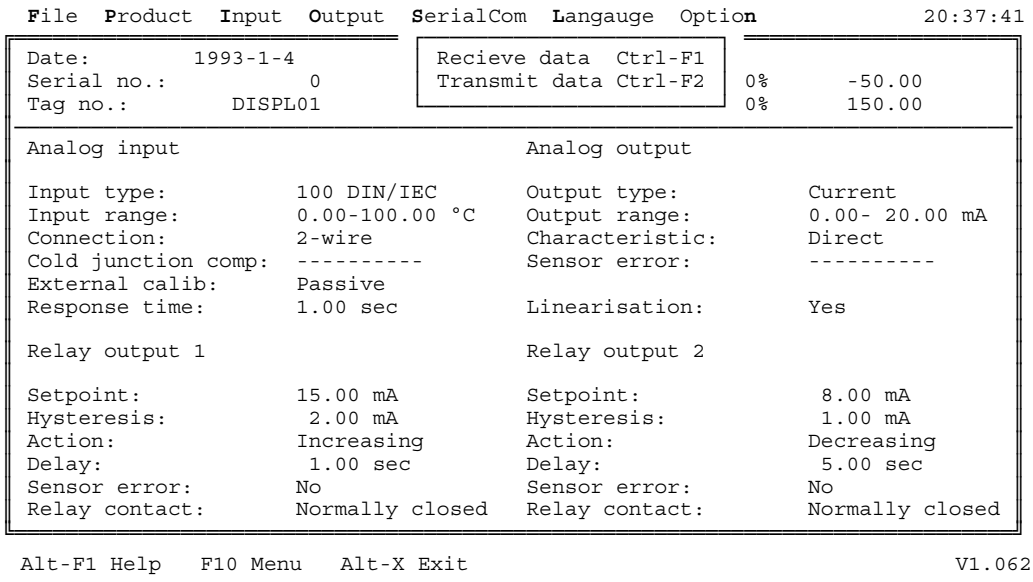
3.5 "Serialcom": Transmit or receive data

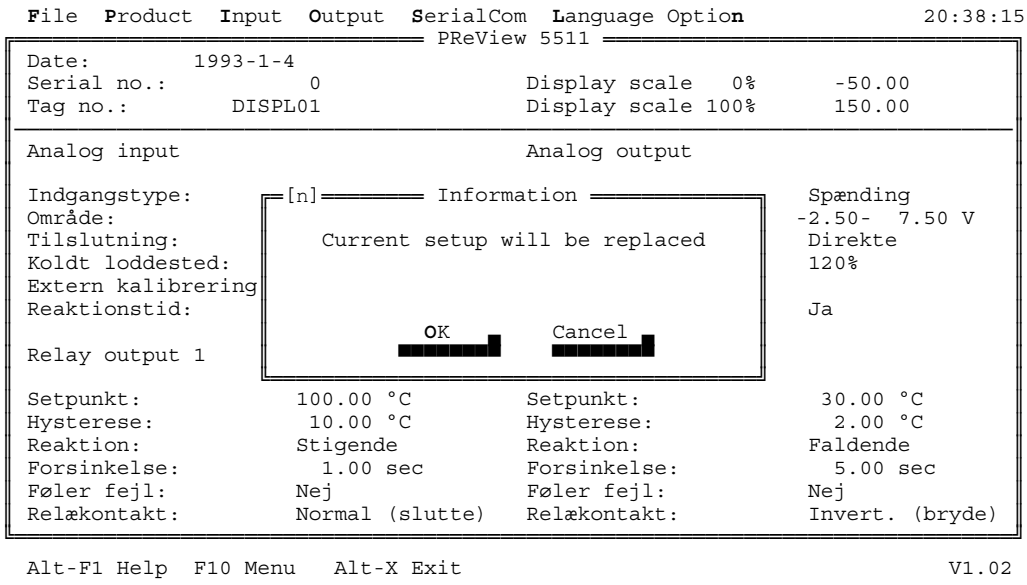
1. Receive - enables configuration data to be retrieved from a transmitter to the PC for review and editing.

2. Transmit - enables configuration data to be transmitted from the PC to the transmitter.

Select option, move the cursor and press CR.

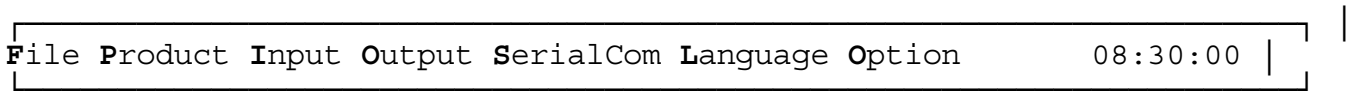
If communication is not successful an error message will appear.





```
 File  Product  Input  Output  SerialCom  Langauge  Option              20:37:41
╔═══════════════════════════╗ ┌──────────────────────┐ ═══════════════════╗
║ Date:        1993-1-4     │ Recieve data  Ctrl-F1 │                    ║
║ Serial no.:         0     │ Transmit data Ctrl-F2 │ 0%      -50.00     ║
║ Tag no.:       DISPL01     └──────────────────────┘ 0%      150.00     ║
╠═══════════════════════════════════════════════════════════════════════╣
║ Analog input                          Analog output                   ║
║                                                                       ║
║ Input type:          100 DIN/IEC      Output type:          Current    ║
║ Input range:         0.00-100.00 °C   Output range:         0.00- 20.00 mA ║
║ Connection:          2-wire           Characteristic:       Direct     ║
║ Cold junction comp:  ----------       Sensor error:         ----------  ║
║ External calib:      Passive                                          ║
║ Response time:       1.00 sec         Linearisation:        Yes        ║
║                                                                       ║
║ Relay output 1                        Relay output 2                  ║
║                                                                       ║
║ Setpoint:            15.00 mA         Setpoint:              8.00 mA   ║
║ Hysteresis:           2.00 mA         Hysteresis:            1.00 mA   ║
║ Action:              Increasing       Action:               Decreasing ║
║ Delay:                1.00 sec        Delay:                 5.00 sec  ║
║ Sensor error:        No               Sensor error:         No         ║
║ Relay contact:       Normally closed  Relay contact:        Normally closed ║
╚═══════════════════════════════════════════════════════════════════════╝
 Alt-F1 Help   F10 Menu   Alt-X Exit                                V1.06
```

```
 File  Product  Input  Output  SerialCom  Language  Option              13:54:24
╔═══════════════════════════════ PReView 5511 ═══════════════════════════════╗
║ Date:             1993-11-11                                              ║
║ Serial no.:        930742272          Display scale   0%        0.00      ║
║ Tag no.:                              Display scale 100%       50.00      ║
╠═══════════════════════════════════════════════════════════════════════╣
║ Analog input                          Analog output                   ║
║                                                                       ║
║ Input type:       ╔═[n]═══════ Warning ═══════╗                       ║
║ Input range:      ║                           ║   0.00- 20.00 mA      ║
║ Connection:       ║       Overwrite Product setup?   ║   Direct       ║
║ Cold junction comp║                           ║   ----------          ║
║ External calib.:  ║                           ║                       ║
║ Response time:    ║                           ║   No                  ║
║                   ║          Ok ■   Cancel ■  ║                       ║
║ Relay output 1    ║          ▀▀▀▀▀▀▀  ▀▀▀▀▀▀▀ ║                       ║
║                   ╚═══════════════════════════╝                       ║
║ Setpoint:            60.00 Ω          Setpoint:             80.00 Ω    ║
║ Hysteresis:           2.00 Ω          Hysteresis:            2.00 Ω    ║
║ Action:              Increasing       Action:               Increasing ║
║ Delay:                0.00 sec        Delay:                 0.00 sec  ║
║ Sensor error:        No               Sensor error:         No         ║
║ Relay contact:       Normally open    Relay contact:        Normally open ║
╚═══════════════════════════════════════════════════════════════════════╝
 Alt-F1 Help  F10 Menu   Alt-X Exit                                 V1.06
```



3.5.3 Monitor

When Optolink 5901 is connected to a PC and the SYSTEM 5000 unit, the input and output values of the unit may be displayed on the PC screen.

Move the cursor to Monitor and press <Enter>.

To terminate the function move the curser to Exit and press <Enter>.

3.5.4 Control

When Optolink 5901 is connected to a PC and the SYSTEM 5000 unit, it is possible to control the output values of the unit. Move the cursor to Control and press <Enter>. Move the curser to select output type for control. To control the analog output enter the value from the keyboard. Active relay function is obtained by entering an "X" using the space key. For units including LED/LCD display the display value to be shown may be entered from the keyboard.

Move the curser to Update and press <Enter> to send the output data to the unit.

To terminate the function move the curser to Exit and press <Enter>.

3.6 "Language" Select language

The following languages are available:

1. Dansk all texts will be Danish.

2. English all texts will be English.

3. Deutch all texts will be German.

4. Français all texts will be in French.

5. Español all texts will be in Spanish.

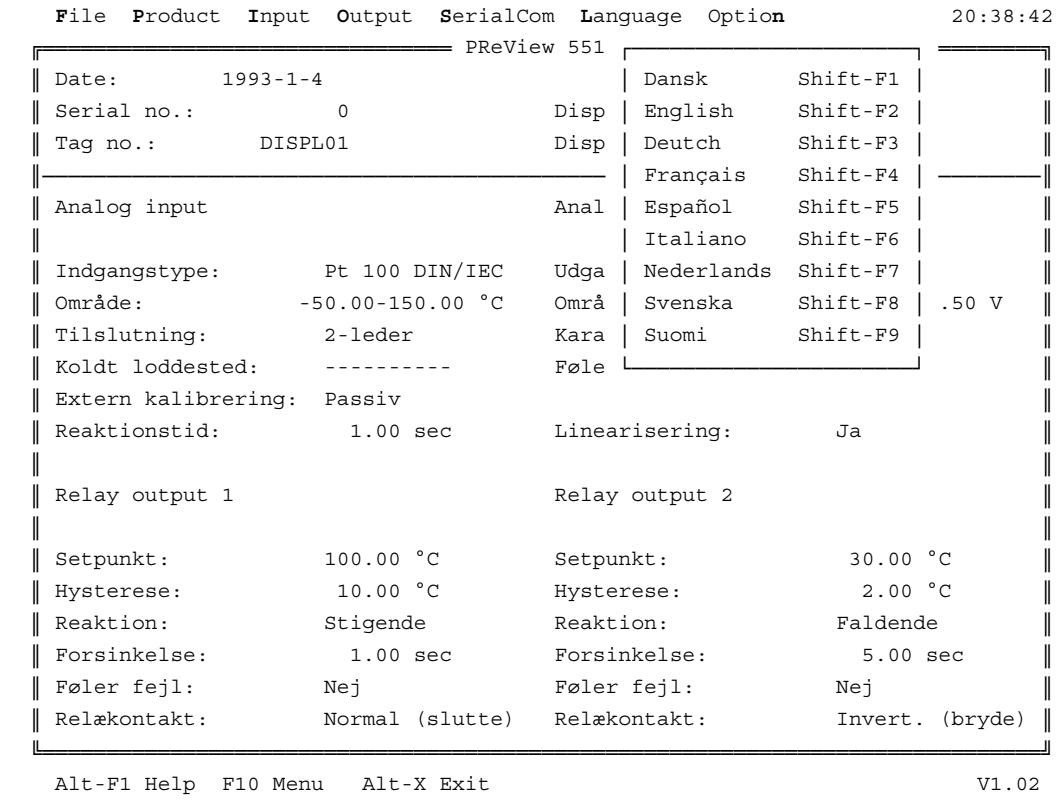
6. Italiano all texts will be in Italian.

7. Nederlands all texts will be in Dutch.

8. Svenska all texts will be in Swedish.

9. Suomi all texts will be in Finnish.

Move the cursor to the desired language by operating the "↑ ↓" and press CR. The display will be updated accordingly.



3.7 "Option" Select additional options in software

The pull down menu offers the following options:

1. Front programming

2. Auto calibration

3. Mains frequency

4. Tag no

5. Communication port

6. Base adjust

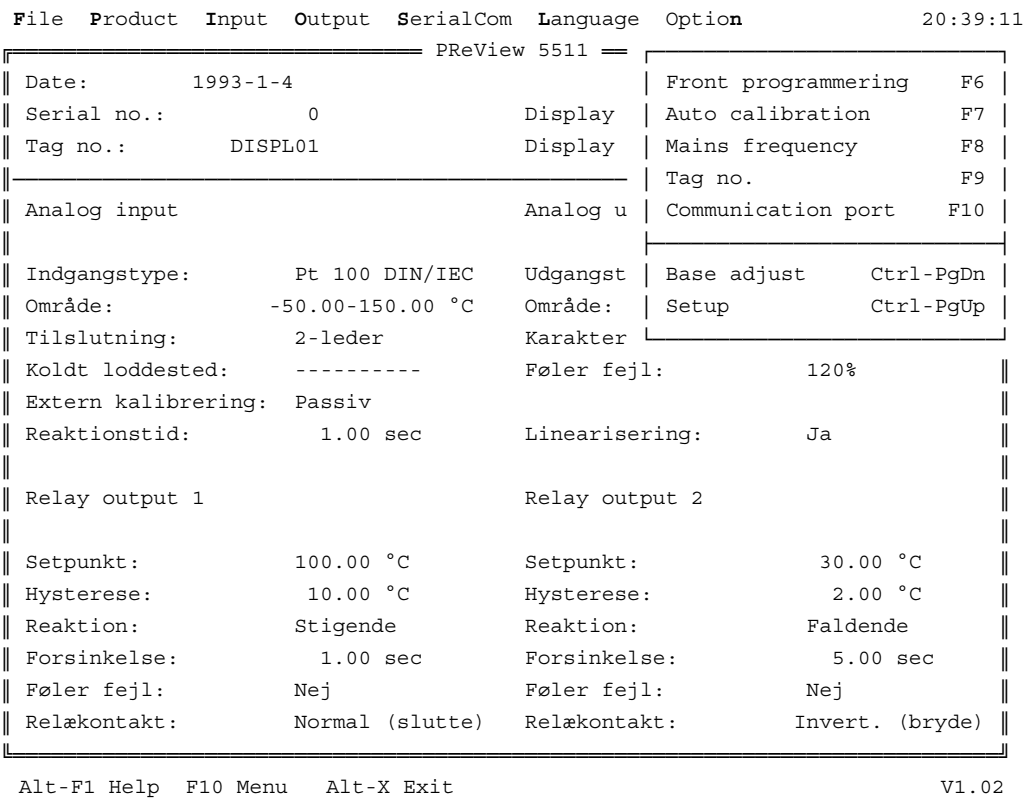
7. Setup

Move the cursor to the desired option by operating the "↑ ↓" keys and press CR.

Use the "TAB" key to get access to the parameters in the dialog window.

The current parameter is indicated by the highlighted cursor.

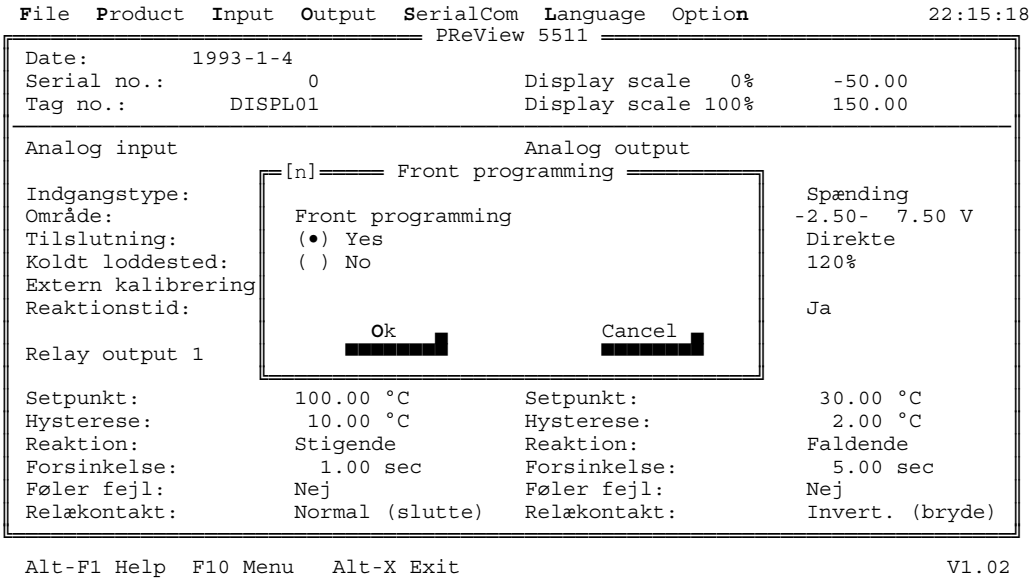
If the dialog window contains several options, select desired option by operating the "↑ ↓" keys and press "TAB". Move the cursor to "OK" and press CR to confirm setup.



3.7.1 Front programming: Enable/disable front keys

Enable/disable programming from front keys in PRetrans and PReview including external calibration of cable resistance.

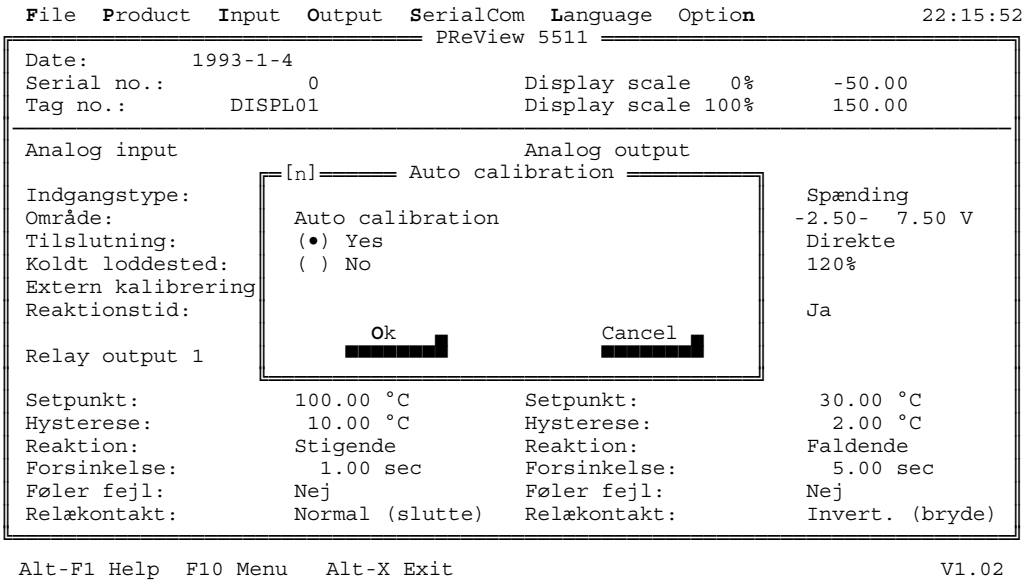
"Yes" Enable front key programming.
"No" Disable front key programming.



3.7.2 Auto calibration: Enable/disable automatic calibration

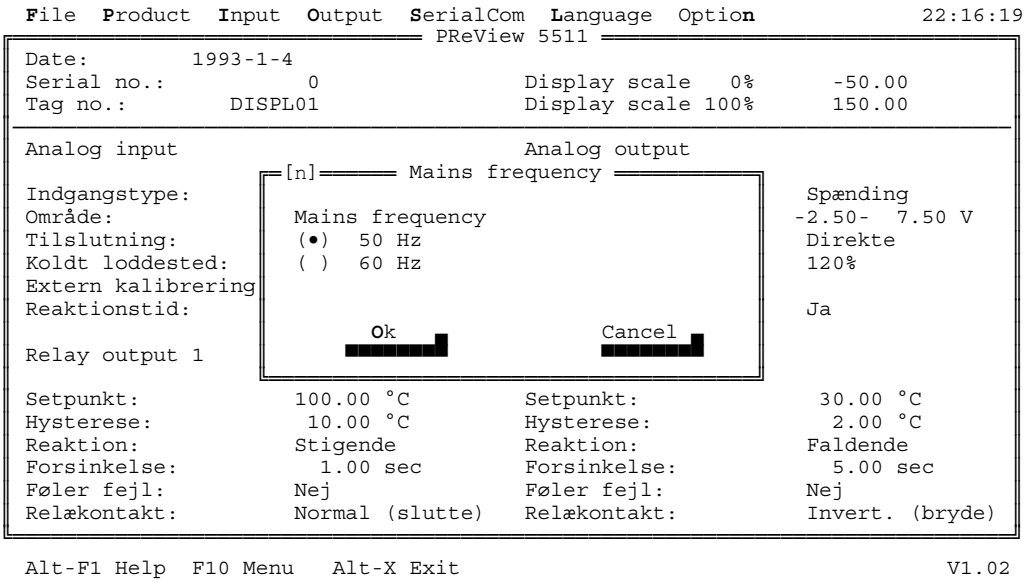
The transmitters A/D converter is calibrated every 30 minutes. This calibration lasts for appr. 150 msec, which means that a minor discontinuity in the registration of slowly varying input signals is introduced during each calibration. If this facility interferes with your data acquisition, auto calibration may be disabled.

"Yes" Enable automatic calibration.
"No" Disable automatic calibration.



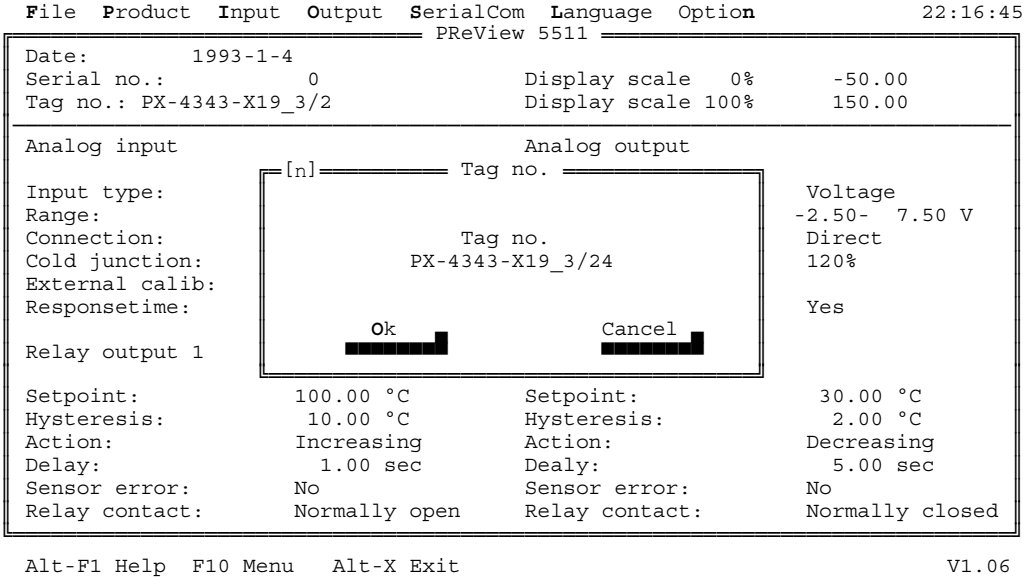
3.7.3 Mains frequency: Select mains frequency

"50 Hz" software adapts for 50 Hz mains frequency filter.
"60 Hz" software adapts for 60 Hz mains frequency filter.



3.7.4 Tag no: Enter unit Tag number

Tag no:
The unit may be identified by tag numbering. The tag number including a maximum of 15 characters is diplayed in the status window.



```
File Product Input Output SerialCom Language Option 08:30:00
```

3.7.5 Process calibration

Move the curser to Process calibration and press <Enter>.

This function is very useful when the analog output need to be adjusted to the input signal, e.g. when the temperature sensor does not correspond with the ideal values for the selected temperature range. The result from this procedure depends on the accuracy of the equipment used for measuring the input/output signals. In the following a process calibration for temperature measurement is shown, however the principle is identical for other applications.

Setup: Input Pt100, 0 - 100 °C, Output 4 - 20 mA. Use a thermometer and a Ampere meter to measure input/output values. 0% value (Analog input x0) is measured at 10 °C corresponding (Analog output y0) 5.44 mA, 100% (Analog output x1) value is measured at 75 °C corresponding (Analog output y1) 16.15 mA. Enter these values:

```
┌──── Process calibration ────┐
│                             │
│ Analog input (x0)     10 °C │
│                             │
│ Analog output (y0)  5.44 mA │
│                             │
│                             │
│ Analog input (x1)     75 °C │
│                             │
│ Analog output (y1) 16.15 mA │
│                             │
│    Ok          Exit         │
└─────────────────────────────┘
```

The span is now changed accordingly from 0 - 100 °C to -1.26 - 101.72 °C. Transmit the process calibrated setup to the unit, which is now calibrated according to the sensor characteristics.

3.7.6 Communication port: Select communication port

"Com1" com port 1 is used for communication between PC and transmitter.
"Com2" com port 2 is used for communication between PC and transmitter.

```
 File  Product  Input  Output  SeialCom  Language  Option              22:18:58
═══════════════════════════ PReView 5511 ═══════════════════════════════════
Date:        1993-1-4
Serial no.:         0                Display scale   0%      -50.00
Tag no.:        DISPL01              Display scale 100%      150.00
──────────────────────────────────────────────────────────────────────────────
Analog input                                 Analog output
                  ┌[n]═══ Communication port ═══════┐
Indgangstype:     │                                 │        Spænding
Område:           │  Communication port             │       -2.50-  7.50 V
Tilslutning:      │  ( ) Com1                       │        Direkte
Koldt loddested:  │  (•) Com2                       │        120%
Extern kalibrering│                                 │
Reaktionstid:     │                                 │        Ja
                  │       Ok            Cancel      │
Relay output 1    └─────────────────────────────────┘
Setpunkt:          100.00 °C         Setpunkt:          30.00 °C
Hysterese:          10.00 °C         Hysterese:          2.00 °C
Reaktion:          Stigende          Reaktion:          Faldende
Forsinkelse:         1.00 sec        Forsinkelse:         5.00 sec
Føler fejl:        Nej               Føler fejl:        Nej
Relækontakt:       Normal (slutte)   Relækontakt:       Invert. (bryde)
──────────────────────────────────────────────────────────────────────────────
Alt-F1 Help  F10 Menu   Alt-X Exit                                   V1.02
```

3.7.7 Base adjust: Base adjustment of SYSTEM 5000 units

Access denied. PR electronics A/S' test department only.

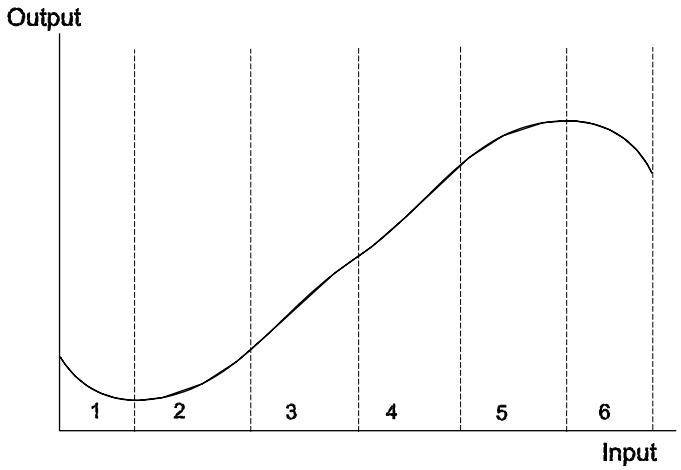
3.7.8 Setup: Display of the internal data block

PR electronics' test department for diagnostic use only.

4 Linerization

SYSTEM 5000 units facilitate custom defined linerization for the following input types: linear resistance, voltage input and current input.

SYSTEM 5000 units operate on a polynomial fit principle. The programmed span is divided into 6 sections, each section is fitted by means of a third order polynomial, see figure.



PReset must calculate 4 coefficients a0, a1, a2 and a3 for all 6 sections including 5 section limits, indicating curve sections for 0 -100% of the input span. This means that PReset must transfer all together 5 section limits and 24 coefficients to PRetrans or PReview. These calculations are rather cumbersome, thus PReset offers three alternative ways to enter data:

1. Linear interpolation: Enter start- and end points of up to 7 straight lines.

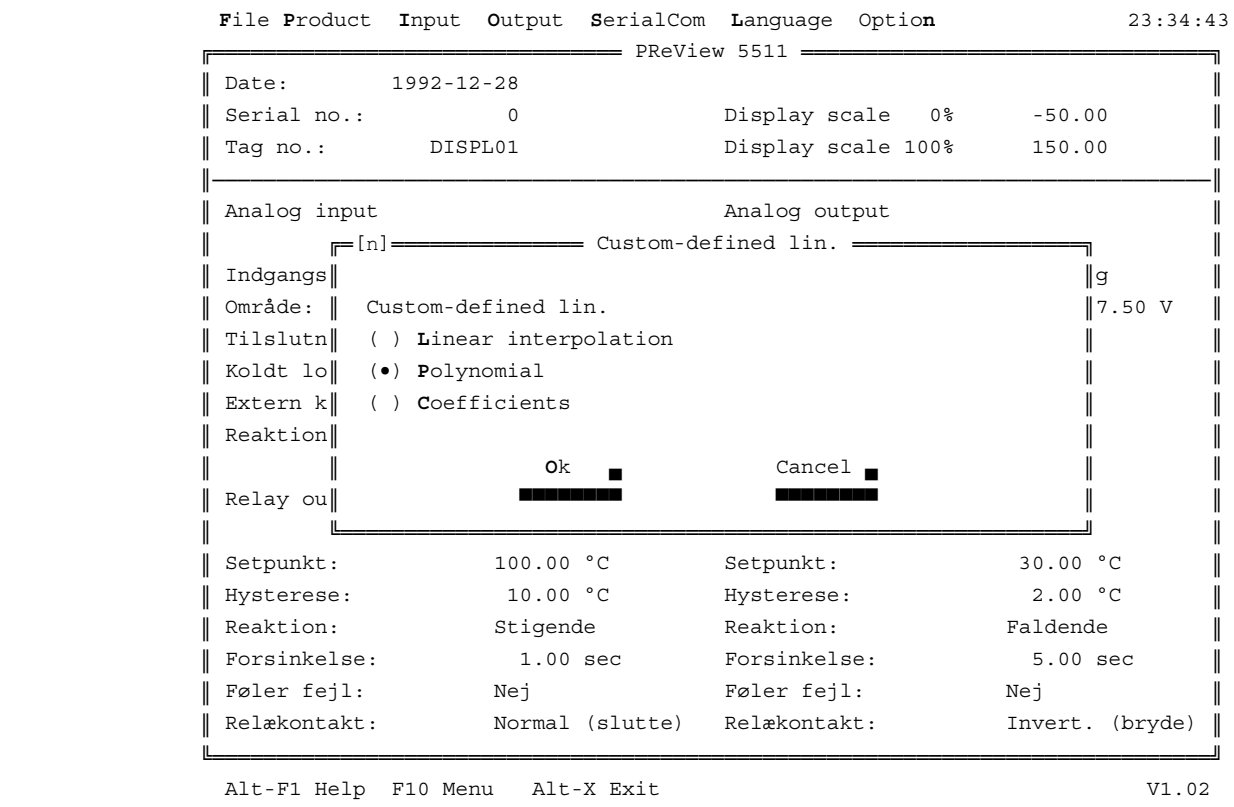
2. Polynomial: Enter from 24 to 60 coordinates from any curvature. PReset will calculate a polynomial fit according to the least squares method.

3. Coefficients: Enter 24 coefficients and 5 limits directly.

For alternative 1 and 2: Xmin, Xmax, Ymin and Ymax must be included. Furthermore corresponding XY must be entered in the table.

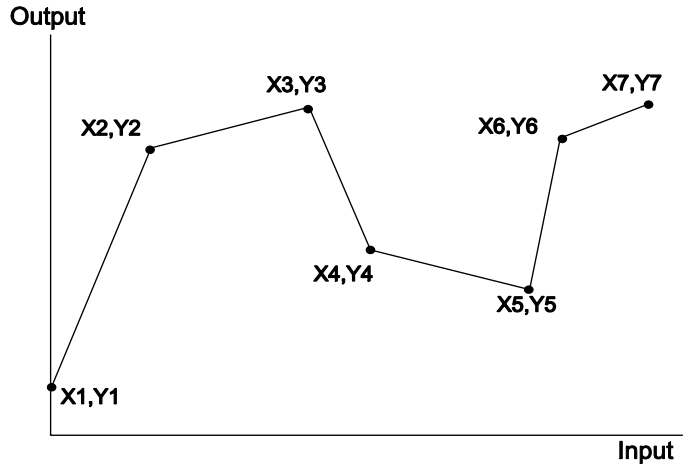
Before coefficients are calculated all X and Y's are normalized to values between 0 and 1, according to the following equations: $X_{norm} = (X_n\text{-Xmin})/(\text{Xmax-Xmin})$ and $Y_{norm} = (Y_n\text{- Ymin})/(\text{Ymax-Ymin})$.

Note: As linearisation is carried out on a normalized basis, all scaling must be performed in PReset input, output or display dialog windows.


File Product Input Output SerialCom Language Option 23:34:43
PReView 5511
Date: 1992-12-28
Serial no.: 0
Tag no.: DISPL01
Display scale 0% -50.00
Display scale 100% 150.00
Analog input
Analog output
[n] Custom-defined lin.
Indgangs
Område:
Tilslutn
Koldt lo
Extern k
Reaktion
Relay ou
g
7.50 V
Custom-defined lin.
( ) Linear interpolation
(•) Polynomial
( ) Coefficients
Ok
Cancel
Setpunkt: 100.00 °C
Hysterese: 10.00 °C
Reaktion: Stigende
Forsinkelse: 1.00 sec
Føler fejl: Nej
Relækontakt: Normal (slutte)
Setpunkt: 30.00 °C
Hysterese: 2.00 °C
Reaktion: Faldende
Forsinkelse: 5.00 sec
Føler fejl: Nej
Relækontakt: Invert. (bryde)
Alt-F1 Help F10 Menu Alt-X Exit
V1.02

4.1 Linear interpolation

Enter from 2 to 7 corresponding sets of XY values, defining the start-/end points for 1 to 6 straight lines, see figure.



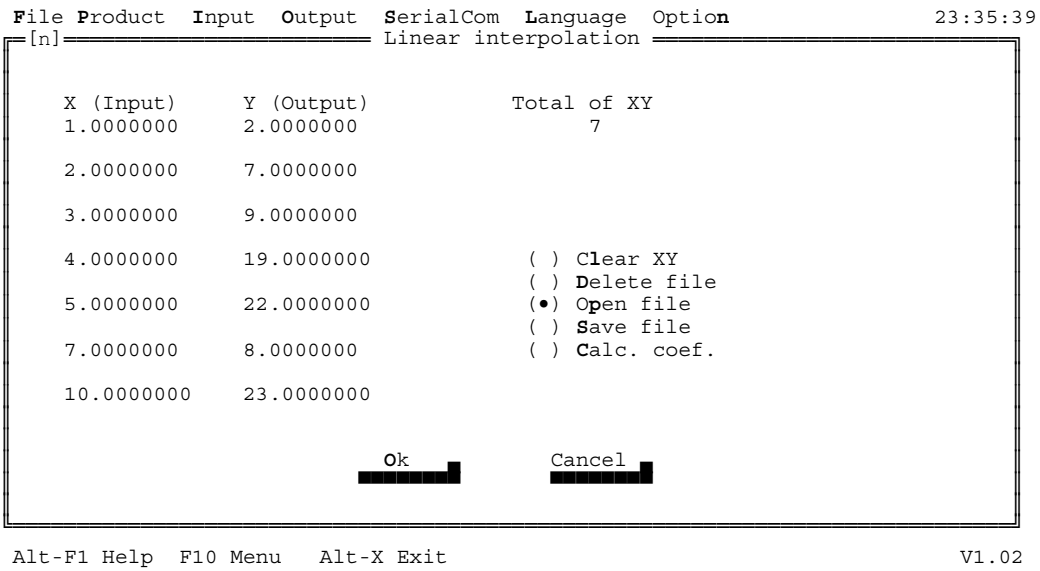
Note: Highest and lowest input values (Xmax and Xmin) plus highest and lowest output values (Ymax and Ymin) must be among the entered values as linearisation is scaled according to these values.

From the entered values PReset calculates the coefficients a0 and a1, defining the equation of each straight line section.

$Y = a0 + a1*X$ (a0 = Y-axis interception, a1 = slope)
(Coefficient a2 = a3 = 0)

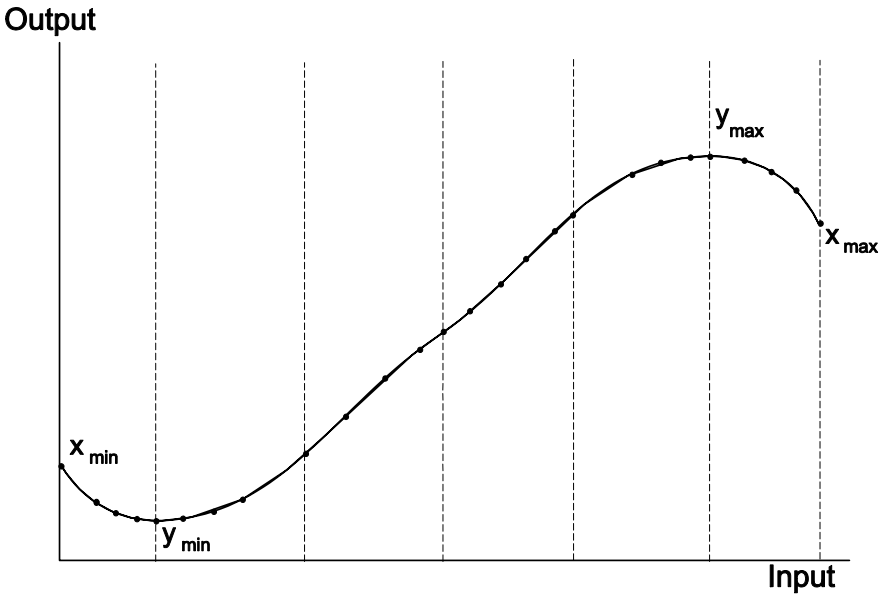
or

$Output_{(0-1)} = a0 + a1*input_{(0-1)}$



4.2 Polynomial linearisation

If the function has the shape of a curve, the polynomial linearisation is the best choice. Enter from 24 to 60 corresponding sets of XY values from the curve, see figure.



Note: Highest and lowest input values (Xmax and Xmin) plus highest and lowest output values (Ymax and Ymin) must be among the entered values as linearisation is scaled according to these values.

PReset divides the curve into the 6 sections. To ensure the best possible fit, most XY-values should be entered in the sections where the function is most curved.
The coefficients for a 3rd order polynomial are calculated for the 6 sections according to the least squares method. PReset will adapt the coefficients, to minimize discrepancy from the entered values.

$Y = a0 + a1*X + a2*X^2 + a3*X^3$

or: $Output_{(0-1)} = a0 + a1*input_{(0-1)} + a2*input_{(0-1)}^2 + a3*input_{(0-1)}^3$

```
 File  Product  Input  Output  SerialCom  Language  Option              23:08:09
═[n]═══════════════════════════ Polynomial ═══════════════════════════════════
    X       Y        X       Y        X       Y        X       Y
 0.2500  0.0000   0.6400  0.2041   2.5000  0.5000  17.500  0.9200
 0.3000  0.0396   0.6600  0.2108   2.7500  0.5200  20.000  0.9500
 0.3500  0.0731   0.7300  0.2327   3.0000  0.5400  20.950  0.9600
 0.3750  0.0880   0.7500  0.2400   3.2000  0.5536  22.500  0.9800
 0.4000  0.1020   0.7700  0.2443   3.5000  0.5700  25.000  1.0000
 0.4200  0.1126   0.8300  0.2606   4.0000  0.6000  0.0000  0.0000
 0.4500  0.1276   0.8700  0.2707   4.5000  0.6300  0.0000  0.0000
 0.4750  0.1394   0.9600  0.2921   5.0000  0.6500  0.0000  0.0000
 0.4900  0.1461   1.0000  0.3000   6.0000  0.6900  0.0000  0.0000
 0.5000  0.1500   1.2500  0.3500   7.0000  0.7200  0.0000  0.0000
 0.5200  0.1590   1.4000  0.3740   8.0000  0.7500  0.0000  0.0000
 0.5400  0.1672   1.5000  0.3900   9.0000  0.7800  0.0000  0.0000
 0.5600  0.1751   1.7500  0.4225   10.000  0.8000  0.0000  0.0000
 0.5800  0.1827   2.0000  0.4500   12.500  0.8500  0.0000  0.0000
 0.6200  0.1972   2.2500  0.4800   15.000  0.8900  0.0000  0.0000
                                                ( ) Clear XY
Total of XY         50                         ( ) Delete file
                      Ok          Cancel        (•) Open file
                                                ( ) Save file
                                                ( ) Calc. coef.
Alt-F1 Help  F10 Menu   Alt-X Exit                          V1.02
```

4.3 Coefficients

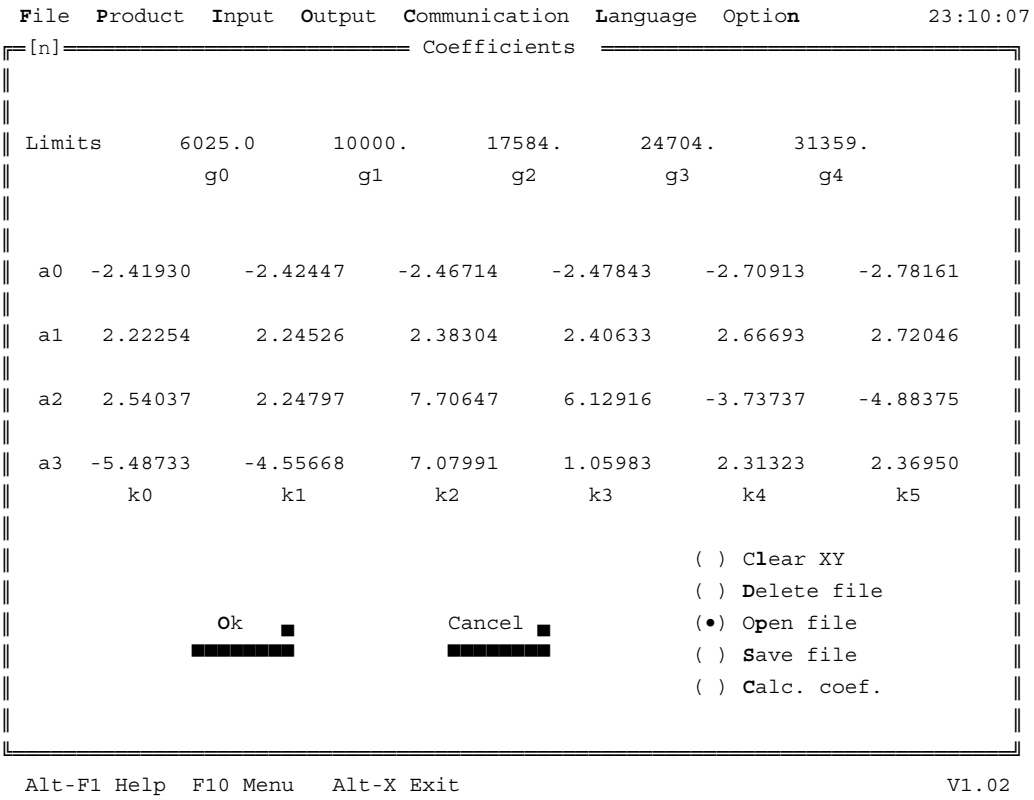
Coefficients may be entered directly:
Enter the 5 section limits, determining the sections of each set of coefficients. The coefficients must be between 0 and 1 (0-100% of input span).

Enter the coefficients a0, a1, a2 and a3 for the 3rd order polynomial

$Y = a0 + a1*X + a2*X^2 + a3*X^3$

for each of the 6 sections. Coefficients could e.g. be calculated by means of the PC program Eureka.

Example: Linearisation $Y = X^2$ can be performed simply by entering the coefficients: a0 = a1 = a3 = 0 and a2 = 1.
Section limits are 1, that is $Y = X^2$ for 0-100 % of input span.



5 Process calibration

5.1 "Only 0% calibration" allows for 0% process calibration (offset).
Enter the input range from the keyboard and select "Only 0% calibration". And transmit setup to the unit.

Proceed as follows:

PRetrans 5111:

1. Apply 0% input signal.
2. Remove front cover and activate the calibration button. LED will change from flashing to steady light.
3. Within 5 sec activate the calibration button once more. LED will return to flashing mode.

PReview 5511/5512:

1. Apply 0% input signal.
2. Select menu 6.5 **In 0** from the front keys.
3. Activate **e** for 0% input signal measuring. Enter 0% input signal by activating ↑ and → simultaneously.
4. Return to "Rum mode" by activating ↑ and then **e**.

5.2 "0%-100% & 0% calibration" allows for both 0% and 100% process calibration.
Enter the approximate input range from the keyboard and select "0%-100% & 0% calibration". Please ensure that the keyboard entered input range exceeds the process calibrated range. And transmit setup to the unit.
Proceed as follows:

PRetrans 5111:

1. Apply 0% input signal.
2. Remove front cover and activate the calibration button. LED will change from flashing to steady light.
3. Wait for 5 sec until LED switched off.
4. Apply 100% input signal and activate the calibration button once more. LED will return to flashing mode.

PReview 5511/5512:

1. Apply 0% input signal.
2. Select menu 6.5 **In LO** from the front keys.
3. Activate **e** for 0% input signal measuring. Enter 0% input signal by activating ↑ and → simultaneously.
4. Apply 100% input signal.
5. Select menu 6.4 **In HI** from the front keys.
6. Activate **e** for 100% input signal measuring. Enter 100% input signal by activating ↑ and → simultaneously.
7. Return to "Rum mode" by activating ↑ and then **e**.

5.2.1 Ratio metric calibration

Ratio metric calibration may be applied if only certain points of the input range can be simulated. E.g. 0% and 30% of the input range, useful in weighing system applications.
Enter the approximate input range from the keyboard and select "0%-100% & 0% calibration". Please ensure that the keyboard entered input range exceeds the process calibrated range and transmit setup to the unit.
Proceed as follows:

1. Apply 0% and 100% process calibration, see section 5.2.
2. Receive setup from unit.(The current setup contains the 0% and 100% input values in the simulated input range).
3. Calculate the actual 100% input value from the simulated 100% value applying this formula:

Actual 100% input value=((max - min) x ratio) + min. input

max = simulated 100% input value at e.g. 30% input range.
min = simulated 0% input value at e.g. 0% input range.
ratio = actual 100% physical measure divided by the simulated physical measure

4. Enter the actual 100% input value from the keyboard.

5. Transmit the setup to the unit.

Example:
In case of a weighing system calibrated for 0-1000 kg physical measure, and only 300 kg is available for 100% calibration:

max = 6.4mV (simulated at 300 kg)
min = 1.6mV (simulated at 0 kg)

Actual 100% input value = ((6.4mV - 1.6mV) x 100/30) + 1.6mV = 17.6mV

5.3 "Protect process calibration"

Disables input parameters from previous process calibration procedure being updated unintentionally when transmitting setups from PReset to a unit. This function also disables process calibration procedure.

6 Sensor error

6.1 Input sensor error detection

The following input types includes sensor error detection option for action on analog output and relay output:

Input type:	**Sensor error Test for detection:** **error type:**
2-wire lin. R	Sensor + both cables Breakage
3-wire lin. R	Sensor Breakage
4-wire lin. R	Sensor + all cables Breakage
2-wire Pt100	Sensor + both cables Breakage + short circuit
3-wire Pt100	Sensor Breakage + short circuit
4-wire Pt100	Sensor + all cables Breakage + short circuit*
Differential input	Sensor + all cables Breakage
TC constant CJC	Sensor + both wires Breakage
TC internal CJC	Sensor + both wires Breakage
CJC-	sensor Breakage + short circuit
TC external CJC	Sensor + both wires Breakage
CJC-	sensor + wires Breakage + short circuit
Current 2 - 20mA	Both cables Breakage + (short circuit)

*Short circuit is detected between the following terminals: 41-43, 42-44, 41-43 and 41-44.

APPENDIX A: Hot keys

MENU BAR

ALT F	:	File
ALT P	:	Product
ALT I	:	Input
ALT O	:	Output
ALT S	:	Communication
ALT L	:	Language
ALT N	:	Option

FILE

F2	:	Delete
F3	:	Open
F4	:	Save
F5	:	Print status
ALT X	:	Return to DOS

PRODUCT

ALT 1	:	PRetrans 5111
ALT 2	:	PReview 5511
ALT 3	:	PReview 5512

INPUT

ALT B	:	TC B
ALT E	:	TC E
ALT J	:	TC J
ALT K	:	TC K
ALT G	:	TC L
ALT M	:	TC N
ALT R	:	TC R
ALT D	:	TC S
ALT T	:	TC T
ALT U	:	TC U
ALT C	:	Pt100 (DIN/IEC)
ALT Q	:	Pt100 (JIS)
ALT A	:	Ni100
ALT Z	:	Linear resistor
ALT V	:	Voltage input
ALT Y	:	Current input

OUTPUT

ALT F6	:	Analog output
ALT F7	:	Relay units
ALT F8	:	Relay output 1
ALT F9	:	Relay output 2
ALT F10	:	Display

COMMUNICATION

Ctrl F1	:	Receive data
Ctrl F2	:	Transmit data

LANGUAGE

Shift F1	:	Dansk
Shift F2	:	English
Shift F3	:	Deutch
Shift F4	:	Français
Shift F5	:	Italiano
Shift F6	:	Nederlands
Shift F7	:	Svenska
Shift F8	:	Suomi
Shift F9	:	Norsk

OPTION

F6 :	Front programming	
F7 :	Auto calibration	
F8 :	Mains frequency	
F9 :	Tag no.	
F10	:	Communication port

STATUS LINE

ALT F1	:	Help (not implemented)
F10	:	Menu
ALT X	:	Exit (Return to DOS)