
Excel 50 Controller

USER GUIDE

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REVISION OVERVIEW

The following pages were changed relative to the previous release of this document:

Page:	Changes:
25-40	Revised Data Points/Parameters sequences.
43-50	Revised Start-up sequence and Test Options sequence.
50	Added Remote Trend Buffer section.
54	Added "Trend Log", "Trend Hysteresis" and "Trend Cycle" to Data Points Attributes.

ABOUT THIS USER GUIDE

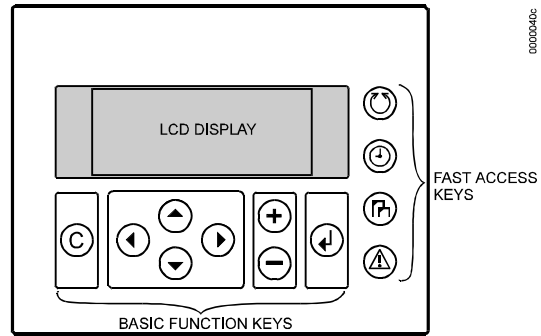
This Excel 50 controller can be used in two different ways:

1. The Excel 50 controller can be used with embedded applications. Preconfigured applications stored in memory in the Application Module are selected by entering a specific code via the MMI.
2. The Excel 50 controller can also be used with standard or custom applications created with the CARE software package and downloaded into the controller. Custom applications may have different screens and sequences than are shown in this document. The screens show here must be considered only as examples.

Differences between these two uses of the Excel 50 are noted where appropriate.

NOTE The format of the date is determined by the Engineering Units:
— US - mm/dd/yyyy
— Europe - dd.mm.yyyy
The Start-up sequence is an exception to this - the date in the Start-up sequence must always be entered in the European format as shown above.

OPERATOR'S TERMINAL



The Excel 50 controller incorporates an operator's terminal with a keyboard and a display.

Keyboard The keyboard has 8 basic function keys and 4 fast access keys. These 12 keys perform the following functions:

Basic Function Keys	Function
ⓐ	CANCEL – Escapes to the previous screen, cancels incorrect entries (provided the 'ENTER' key has not confirmed the entry) or confirms alarm messages.
⬆	ARROW UP – Moves the cursor to the previous line.
⬇	ARROW DOWN – Moves the cursor to the next line.
⬆	ARROW RIGHT – Moves the cursor to the next field of the current line.
⬆	ARROW LEFT – Moves the cursor to the previous field of the current line.
+	PLUS – Increases a numerical value by 1 each time the key is pressed or switches a digital status to the opposite status condition.
-	MINUS – Decreases a numerical value by 1 each time the key is pressed or switches a digital status to the opposite status condition.
⬆	ENTER – Confirms any changes made or moves to the next screen.
Fast Access Keys	Function
⌚	Plant – Displays data about the plant's current status.
⌚	Time program – Initially displays the password entry screen to provide access to edit time program settings: System clock (current date, time, daylight savings dates), Daily time programs, Weekly time programs, Annual time programs.
⌚	Data points / parameters – Initially displays the password entry screen to provide access to information on: Physical, remote and pseudo user addresses, parameters, system data, DDC program cycle time, buswide access and Flash EPROM.

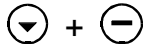


Alarms – Displays alarm information on:
Alarm history, points currently in an alarm condition, critical and noncritical alarms.

RESET A RESET can be achieved by pressing the following keys simultaneously:

IMPORTANT

After performing a RESET all data in the RAM and the configuration codes are lost.

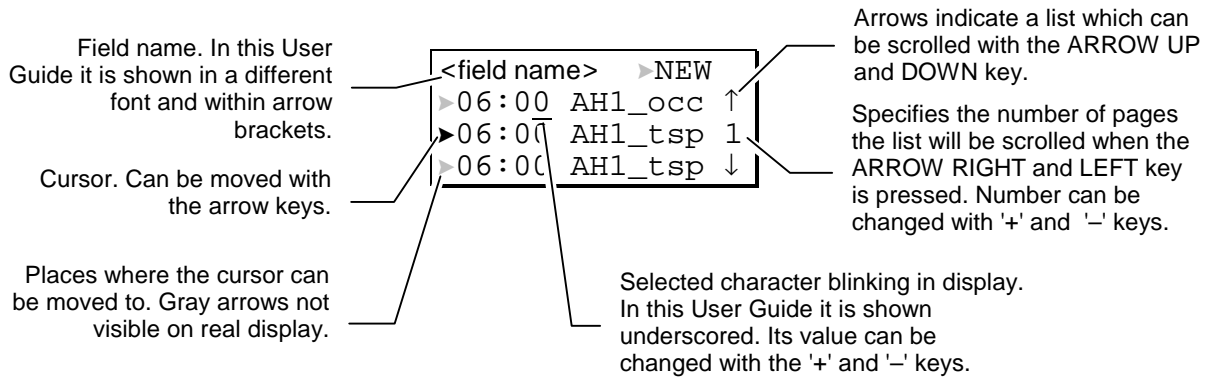


ARROW DOWN and MINUS – Reboots the controller and starts the 'Start-up Sequence'

A RESET can also be achieved by pressing the hardware RESET button at the rear of the controller housing under Terminal Block B.

Display The display shows 4 lines of alphanumeric text with 16 characters per line.

A typical screen contains fields, either a cursor or a blinking character, 'up' and 'down' arrows and may look like the following example:



The field name is sometimes shown in this User Guide to make a screen easier to understand. Field names are not visible on the Excel 50 display.

NOTE The screens shown in this User Guide are examples and may differ slightly from the screens visible on your Excel 50 controller.

PASSWORD PROCEDURE

The following fast access keys are not password-protected:

 Plant

 Alarms

A password is required before the following fast access keys can be fully used:

 Time programs

 Data points / parameters

The password allows access to sensitive data screens.

NOTE The password procedure will not be repeated in the following sections. Refer back to this page for guidance on the password procedure. For more information about the access levels see section "Operator Access Levels".

NOTE If no password or the level-2 password is entered, only those screens are displayed which the user may access at that operator access level. Entering the level-3 password enables to access all data screens and to change all values.

IMPORTANT

If you have forgotten the password, please contact your local Honeywell branch.

```

Please Enter
Your Password
  >****
                                >NEXT
  
```

Select the password field by moving the cursor with the arrow keys. Confirm with ENTER.

```

Please Enter
Your Password
  >3***
  <_
                                >NEXT
  
```

Enter the password by changing the number displayed using the '+' or '-' keys and by moving to the next digit using the ARROW RIGHT key (Underscored character is blinking in reality).

For operator access level 1 no password has to be entered.

```

Please Enter
Your Password
  >***5
  <_
                                >NEXT
  
```

Confirm with ENTER.

```

Please Enter
Your Password
  ▶ ****
                ▶NEXT
  
```

Select the 'NEXT' field using the arrow keys. Confirm with ENTER to proceed to the next screen.

Modifying a Password

If the level-3 password has been entered, the level-2 and level-3 passwords can be changed:

```

Please Enter
Your Password
  ▶ ****
▶CHANGE  ▶NEXT
  
```

Move the cursor to the 'CHANGE' field. Confirm with ENTER.

```

Modify Password
Level 2:▶2222
Level 3:▶3333
                ▶NEXT
  
```

Select the password to be modified by moving the cursor with the arrow keys. Confirm with ENTER.

Change the password using the '+' or '-' keys and by moving to the next digit using the ARROW RIGHT key. Confirm with ENTER.

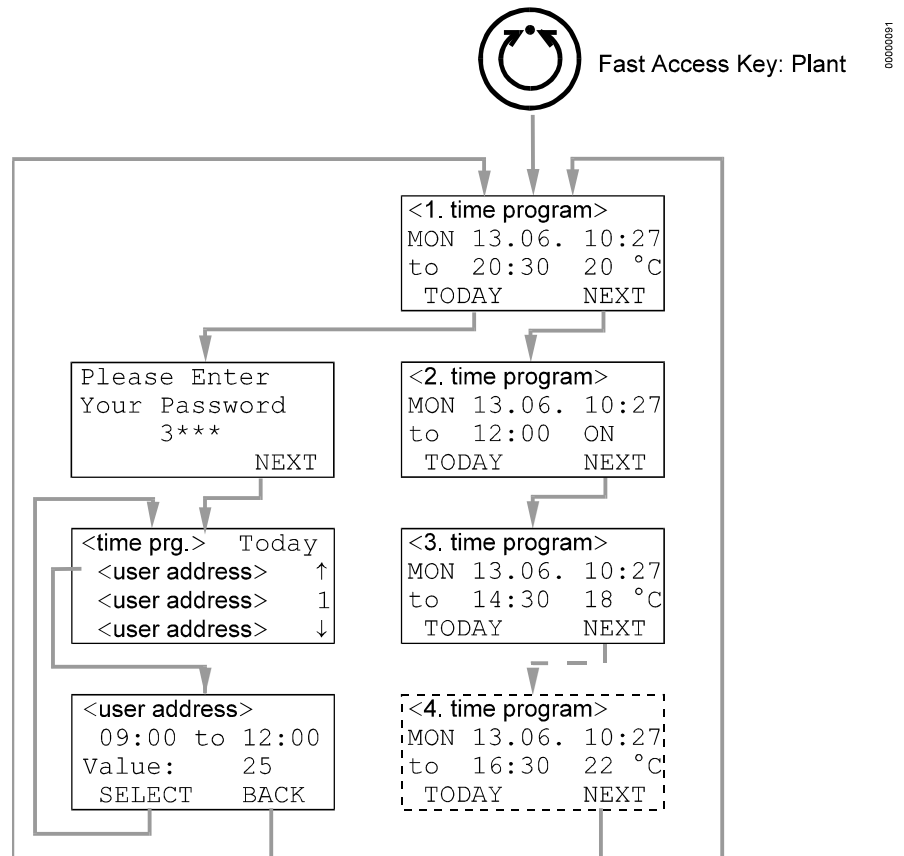
```

Modify Password
Level 2:▶1775
Level 3:▶3333
                ▶NEXT
  
```

After selecting 'NEXT' the previous screen will be displayed.

NOTE The default level-2 password is '2222'.
The default level-3 password is '3333'.

PLANT KEY



The 'Plant' procedure is used to choose the time program where changes should be made to in the 'Time program' procedure and to make temporary changes to the daily time program. The first screen of the 'Plant' procedure is the start screen. It is the default screen and is always visible when no other screen has been selected. This start screen will also be displayed if there has been no keypress for a long time.

The screen displays the name of the first time program, the current day, the date and the time. The next switching time of the first user address of the time program with its current value/status is displayed below. Each time program can be assigned to more than one user address. Each application can have up to 20 different time programs.

Press the 'Plant' fast access key to display the default screen.

```

<1. time program>
MON 13.06. 10:27
to 20:30 20 °C
▶TODAY ▶NEXT
  
```

Select

- the 'NEXT' field using the arrow keys to display the next time program.
- the 'TODAY' field using the arrow keys to make temporary changes to the actual time program.

Confirm with ENTER.

If 'NEXT' has been selected, the screen will now display the next time program with the switching point time of the first user address with its value/status and the current day, date and time.

```

<2. time program>
MON 13.06. 10:27
to 12:00 ON
▶TODAY ▶NEXT
    
```

Move the cursor to the 'NEXT' field. Confirm with ENTER.

```

<3. time program>
MON 13.06. 10:27
to 14:30 18 °C
▶TODAY ▶NEXT
    
```

Like the previous screen this next screen displays the next time program with its switching point, value/status and current day, date and time.

TODAY Function

The 'TODAY' function allows the user to make an immediate, temporary change to the switching time point or the value/status without affecting the original time program. When using the 'TODAY' function the data point must have value/status and start and stop times assigned.

Important

The new start time will be within 24 hours of the current time. That means for example, a start time of 10:00 a.m. entered at 10:27 a.m. will activate the temporary changes the next morning. The edited fields are only valid for 24 hours; they are automatically deleted after the stop time has been reached.

If 'TODAY' has been selected, the screen will now display the password entry screen.

```

Please Enter
Your password
▶*****
▶NEXT
    
```

NOTE Editing a switching time point requires level-2 or level-3 password.

Enter the level-2 or level-3 password using the arrow keys and the '+' and '-' key. Confirm with ENTER.

```

<time prg.> Today
▶<user address> ↑
▶<user address> 1
▶<user address> ↓
    
```

Select the user address to be changed temporarily using the arrow keys. Confirm with ENTER.

```

<user address>
>09:00 to>12:00
Value: >ON
>SELECT >BACK
    
```

Edit the time or value/status using the '+' or '-' keys as required and use the arrow keys to move from field to field. Confirm with ENTER.

```

<user address>
>10:00 to>13:00
Value: >ON
>SELECT >BACK
    
```

Once editing is complete, select
 - SELECT to return to the selection list screen.
 - BACK to return to the default screen.
 Confirm with ENTER.

Example A normal day cycle is shown below.

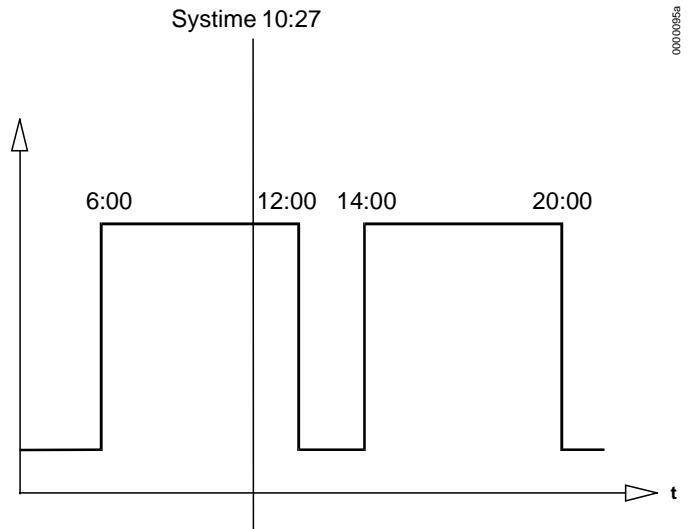
Day cycle: 06:00 ON
 12:00 OFF
 14:00 ON
 20:00 OFF

Screen displays:

```

AH01
MON 13.06. 10:27
TO: 12:00 ON
TODAY NEXT
    
```

Time of the next change of state	Status	Current time
12:00	ON	10:27...11:59
14:00	OFF	12:00...13:59
20:00	ON	14:00...19:59
6:00	OFF	20:00... 5:59



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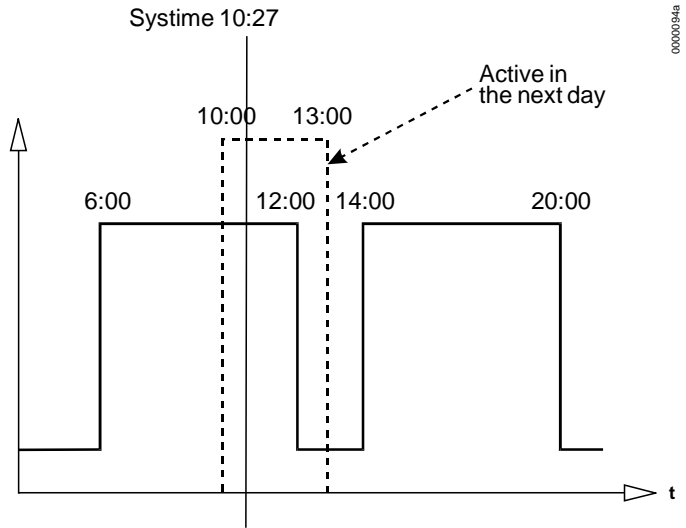
To this day cycle a 'TODAY' entry from 10:00 to 13:00 with the status ON has been made. The time of the next change has changed temporarily from 12:00 to 13:00. See the following figure.

Screen displays:

```

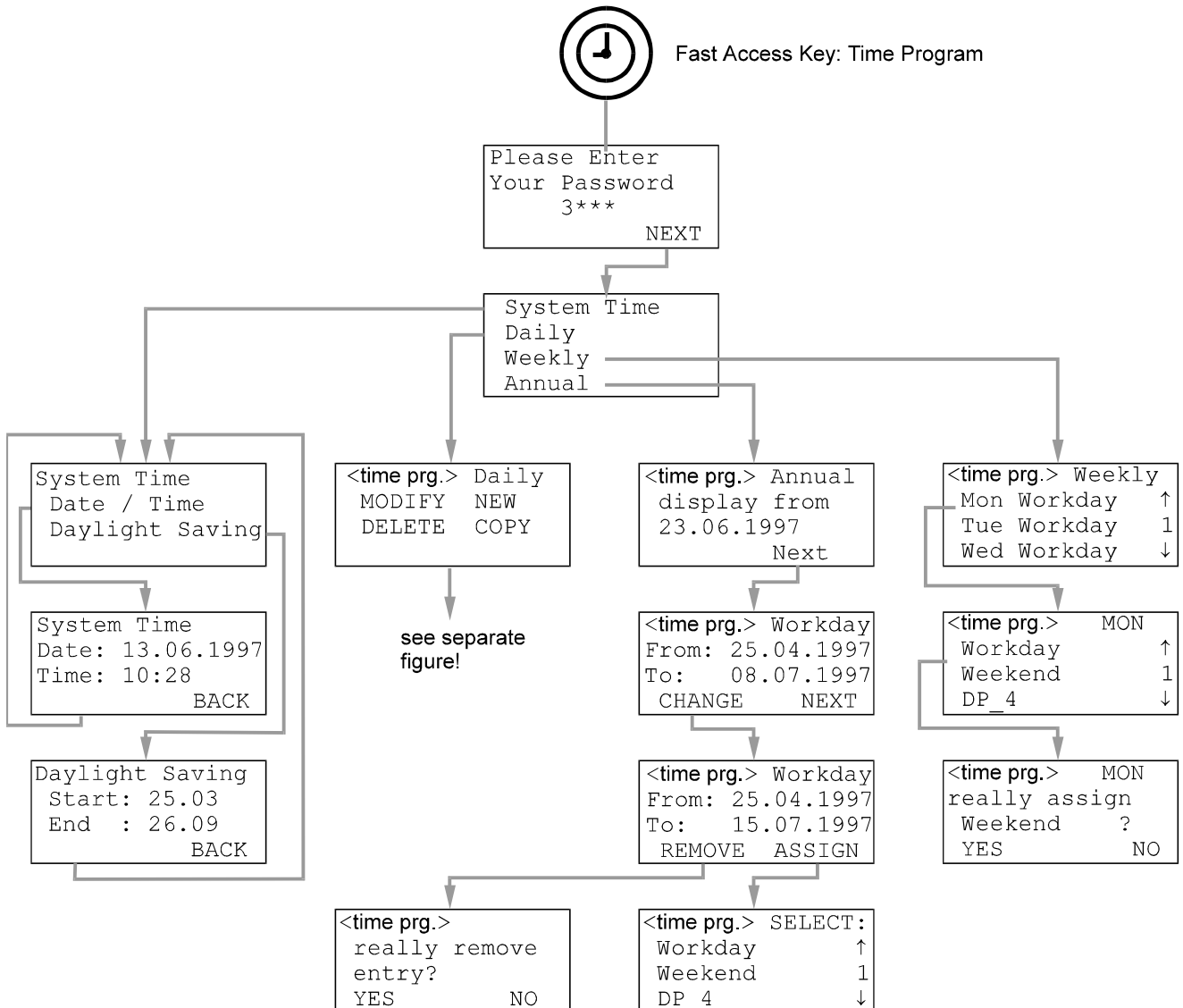
AH01
MON 13.06. 10:27
TO: 13:00 ON
TODAY NEXT
    
```

Time of the next change of state	Status	Current time
13:00	ON	10:27...12:59
14:00	OFF	13:00...13:59
20:00	ON	14:00...19:59
6:00	OFF	20:00... 5:59



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TIME PROGRAM KEY



Select the time program by pressing the 'Plant' fast access key and changing the screens with the NEXT field until the time program name to be changed appears in the first line of the screen.

Press the 'Time program' fast access key to edit time program settings. The password entry screen will be displayed.



To edit the system time requires level-2 or level-3 password. Refer to the section 'Password Procedure' for help with password entry.

Enter the password. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

System Time

The 'System Time' procedure is used to make changes to the time and the date, the Excel 50 controller uses for its control programs. Use the 'Daylight saving' function instead of the 'Date / Time' function to change the time in spring and autumn.

```

▶System Time
▶Daily
▶Weekly
▶Annual

```

Move the cursor to the 'System Time' field using the arrow keys. Confirm with ENTER.

Setting Date and Time

```

System Time
▶Date / Time
▶Daylight Saving

```

Move the cursor to the 'Date / Time' field using the arrow keys. Confirm with ENTER.

```

System Time
Date:▶13.06.1997
Time:▶10:28
      ▶BACK

```

Move the cursor to the 'Date' or 'Time' field using the arrow keys. Confirm with ENTER.

```

System Time
Date:▶23.06.1997
Time:▶10:28
      ▶BACK

```

If 'Date' is selected:

Set the date using the '+' or '-' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Select BACK. Confirm with ENTER to return to the previous screen.

NOTE The date must be entered in the format determined by the Engineering Units: for example, 23. July 1997 must be entered as 23.07.1997 for Europe and 07/23/1997 for the US. Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.


```

System Time
Date:▶23.06.1997
Time:▶12:30
      ▶BACK

```

If 'Time' is selected:

Set the time using the '+' or '-' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Use the CANCEL key to return to the previous screen.

NOTE The time must be entered in the following format: HH:MM in 24 hour clock format; for example: 9:30 a.m. must be 09:30 and 9:30 p.m. must be 21:30. Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.

Daylight Saving

The actual daylight saving start and end date has to be changed every year.

```

System Time
▶Date / Time
▶Daylight Saving

```

Move the cursor to the 'Daylight Saving' field using the arrow keys. Confirm with ENTER.

```

Daylight Saving
Start:▶25.03
End  :▶26.09
      ▶BACK

```

Enter the beginning and end dates of the daylight saving time using the '+' or '-' keys. Move from field to field using the arrow keys. Confirm with ENTER.

NOTE Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.

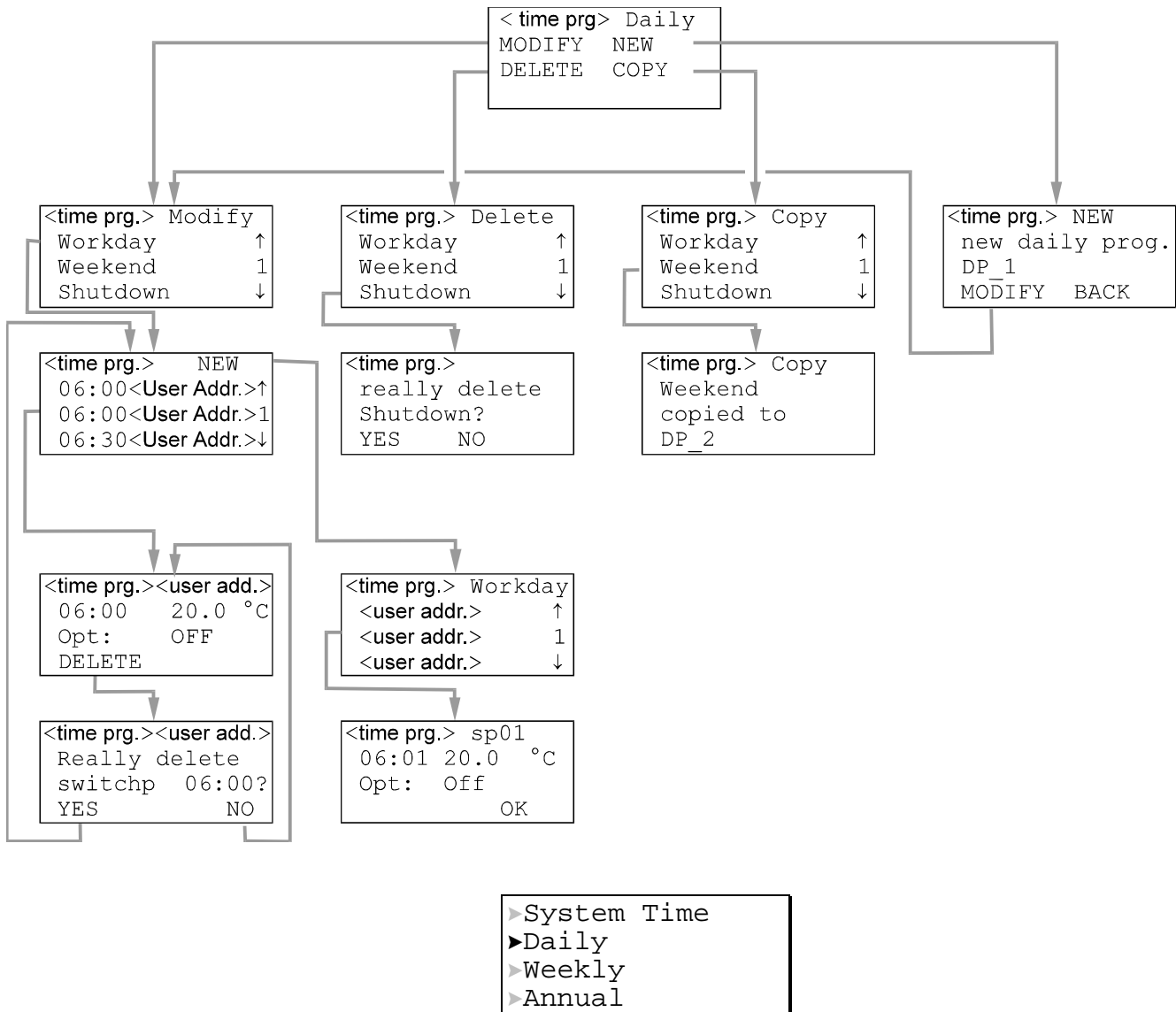
```

Daylight Saving
Start:▶27.03
End  :▶26.09
      ▶BACK

```

Select BACK. Confirm with ENTER to return to the start screen of the time program.

Daily Program



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Move the cursor to the 'Daily' field in the main screen using the arrow keys. Confirm with ENTER.

NOTE The 'Daily' program contains daily time programs.

```

AHU1    Daily
▶MODIFY ▶NEW
▶DELETE ▶COPY

```

Select

- 'Modify' to modify the daily time programs.
 - 'New' to create a new daily time program.
 - 'Delete' to delete a daily time program.
 - 'Copy' to copy a daily time program to another.
- Confirm with ENTER.

Modifying a Daily Time Program

```

AHU1    Modify
▶Workday      ↑
▶Weekend      1
▶Shutdown     ↓

```

Move the cursor to the daily time program to be modified and press ENTER.

Creating a New Switching Point

```

AHU1          ▶NEW
▶06:00 <user addr.>↑
▶06:00 <user addr.>1
▶06:30 <user addr.>↓

```

To create a new switching point select 'New'. Confirm with ENTER.

```

AHU1          Workday
▶<user addr.>    ↑
▶<user addr.>    1
▶<user addr.>    ↓

```

Select the user address the new switching point should belong to.

```

AHU1          sp01
▶06:01 ▶20.0 °C
Opt: ▶OFF
▶OK

```

Modify the time, the value or the optimize flag of the new switching point using the '+' or '-' keys (The optimize flag can only be set to ON if the user address is suitable for optimization).

Use the arrow keys to move from field to field. Confirm with ENTER.

Select OK and confirm with ENTER to add the new switching point to the actual time program.

Modifying or Deleting a Switching Point

```

AHU1          ▶NEW
▶06:00 <user addr.>↑
▶06:00 <user addr.>1
▶06:00 <user addr.>↓

```

To modify or delete a switching point select the switching point. Confirm with ENTER.

```

AHU1    <user addr.>
▶06:00 ▶20.0°C
  Opt:  ▶OFF
▶DELETE

```

Modify the time, the value or the optimize flag of the switching point. Move the cursor to the field to be edited using the arrow keys. Confirm with ENTER.

Use the '+' and '-' keys to change the field content. Select the 'Delete' field to delete the switching point.

```

AHU1    <user addr.>
  Really delete
  switchp 06:00?
▶YES          ▶NO

```

Select 'YES' to delete the switching point or select 'NO' to escape to the previous screen without deleting the switching point. Confirm with ENTER.

Creating a New Daily Time Program

Select 'YES' to create a new daily time program. Confirm with ENTER.

```

AHU1
  new daily prog.
  DP 1
▶MODIFY ▶BACK

```

The newly created daily time program gets the name DP and the lowest number which is not assigned to a daily time program.

Select

- 'MODIFY' to go to the 'Modify daily time program' sequence.
- 'BACK' to go back to the 'Time program' menu screen.

Confirm with ENTER.

Deleting a Daily Time Program

```

AHU1      Delete
▶Workday      ↑
▶Weekend      1
▶Shutdown     ↓
  
```

Select the daily time program to be deleted using the arrow keys. Confirm with ENTER.

```

AHU1
Really delete
Shutdown ?
▶YES          ▶NO
  
```

Select 'YES' to delete the daily time program or 'NO' to keep it. Confirm with ENTER.

Copying a Daily Time Program

A daily time program can be copied in order to create a new daily time program which should be similar to an already existing daily time program.

```

AHU1      Copy
▶Workday      ↑
▶Weekend      1
▶Shutdown     ↓
  
```

Choose the daily time program to be copied using the arrow keys. Confirm with ENTER.

```

AHU1
Weekend
copied to
DP_2      ▶BACK
  
```

The copy of the daily time program gets the name DP and the lowest number which is not assigned to a daily time program.

Weekly Program

```

▶System Time
▶Daily
▶Weekly
▶Annual
  
```

Select the 'Weekly' field using the arrow keys. Confirm with ENTER.

```

AHU1      Weekly
▶MON Workday  ↑
▶TUE Workday  1
▶WED Workday  ↓

```

A daily time program is assigned to each day of the week in the weekly time program. To assign another daily time program to a day of the week select this day. Confirm with ENTER.

```

AHU1      MON
▶Workday  ↑
▶Weekend  1
▶DP 1     ↓

```

Select the daily time program to be assigned to the day of the week displayed in the upper right corner. Confirm with ENTER.

```

AHU1      MON
really assign
Weekend   ?
▶YES      ▶NO

```

Select 'YES' to assign the daily time program to the weekday or 'NO' to escape from this screen without any changes. Confirm with ENTER.

Annual Program

```

System Time
▶Daily
▶Weekly
▶Annual

```

Move the cursor to the 'Annual' field using the arrow keys. Confirm with ENTER.

```

AHU1      Annual
display from
▶23.06.1997
▶NEXT

```

The annual program will be displayed from the date shown in this screen. The default date is the current date. Move the cursor to the date field. Confirm with ENTER.

Use the '+' or '-' keys to change the date and move to the next digit using the ARROW RIGHT key. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

```

AHU1      Workday
From: 22.12.1997
To: 07.01.1998
▶CHANGE ▶NEXT

```

In this screen the name of the daily time program which is assigned to the period is shown.

If there is no daily time program assigned to the annual schedule, the following screen appears:

```

AHU1      *****
FRI 16.05.1997
FRI 16.05.1997
▶CHANGE   ▶NEXT
    
```

For both screens select

- 'NEXT' to display the next period a daily time program is assigned to.
- 'CHANGE' and confirm with ENTER to change the settings for the shown period.

Confirm with ENTER.

```

AHU1      Workday
From:▶22.12.1997
To:  ▶07.01.1998
▶REMOVE  ▶ASSIGN
    
```

If 'Change' has been selected this screen will be displayed. Move the cursor to the date fields using the arrow keys to change the dates. Confirm with ENTER. Use the '+' and '-' keys to change the start and end dates.

Select

- ASSIGN to assign another daily time program to the period.
- REMOVE to remove the daily time program shown in the first line of the screen from the period.

Confirm with ENTER.

```

AHU1      SELECT:
▶Workday  ↑
▶Weekend  1
▶DP 4     ↓
    
```

If 'ASSIGN' has been selected, this screen will show up. Select a daily time program to assign it to the previously entered period of time. Confirm with ENTER.

```

AHU1
really remove
entry?
▶YES      ▶NO
    
```

If 'REMOVE' has been selected this screen will show up. Select 'YES' to remove the daily time program from the period. Confirm with ENTER.

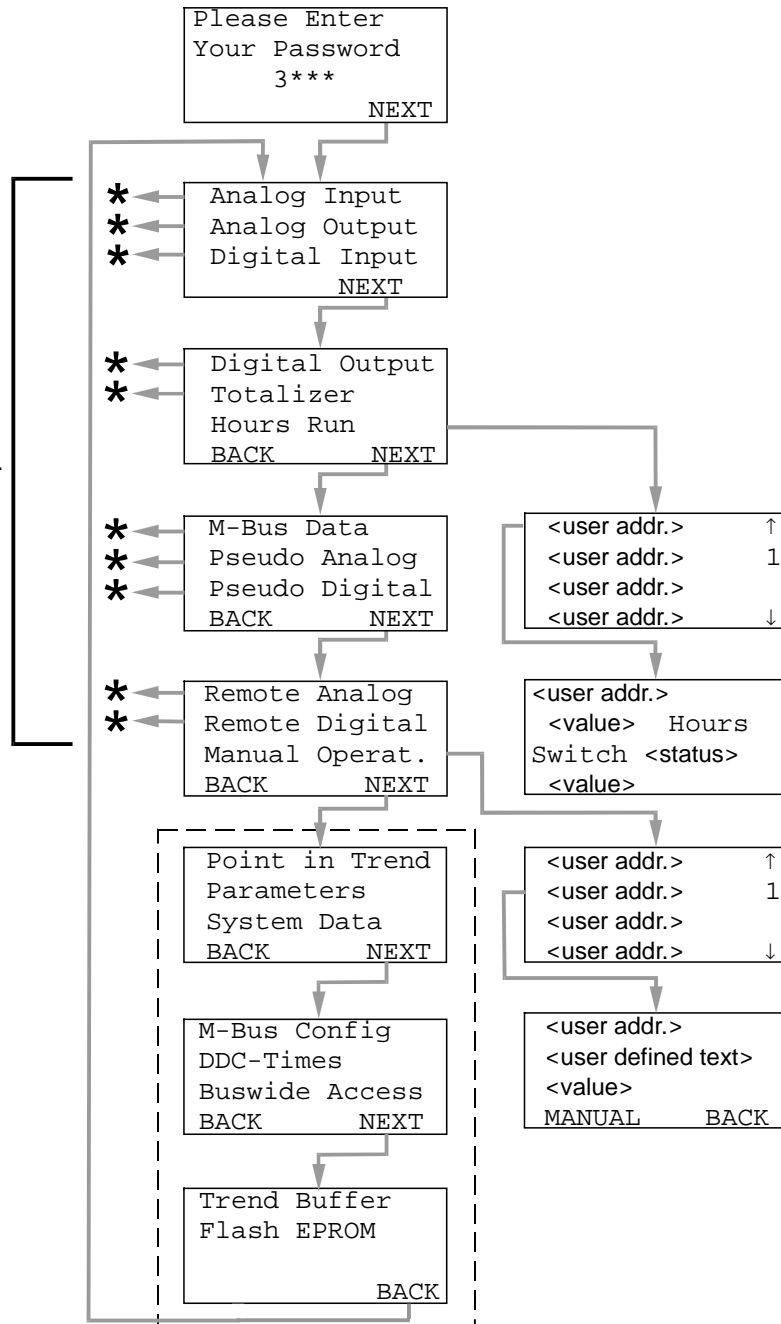
DATA POINTS / PARAMETERS KEY



Fast access key: Data Points / Parameters

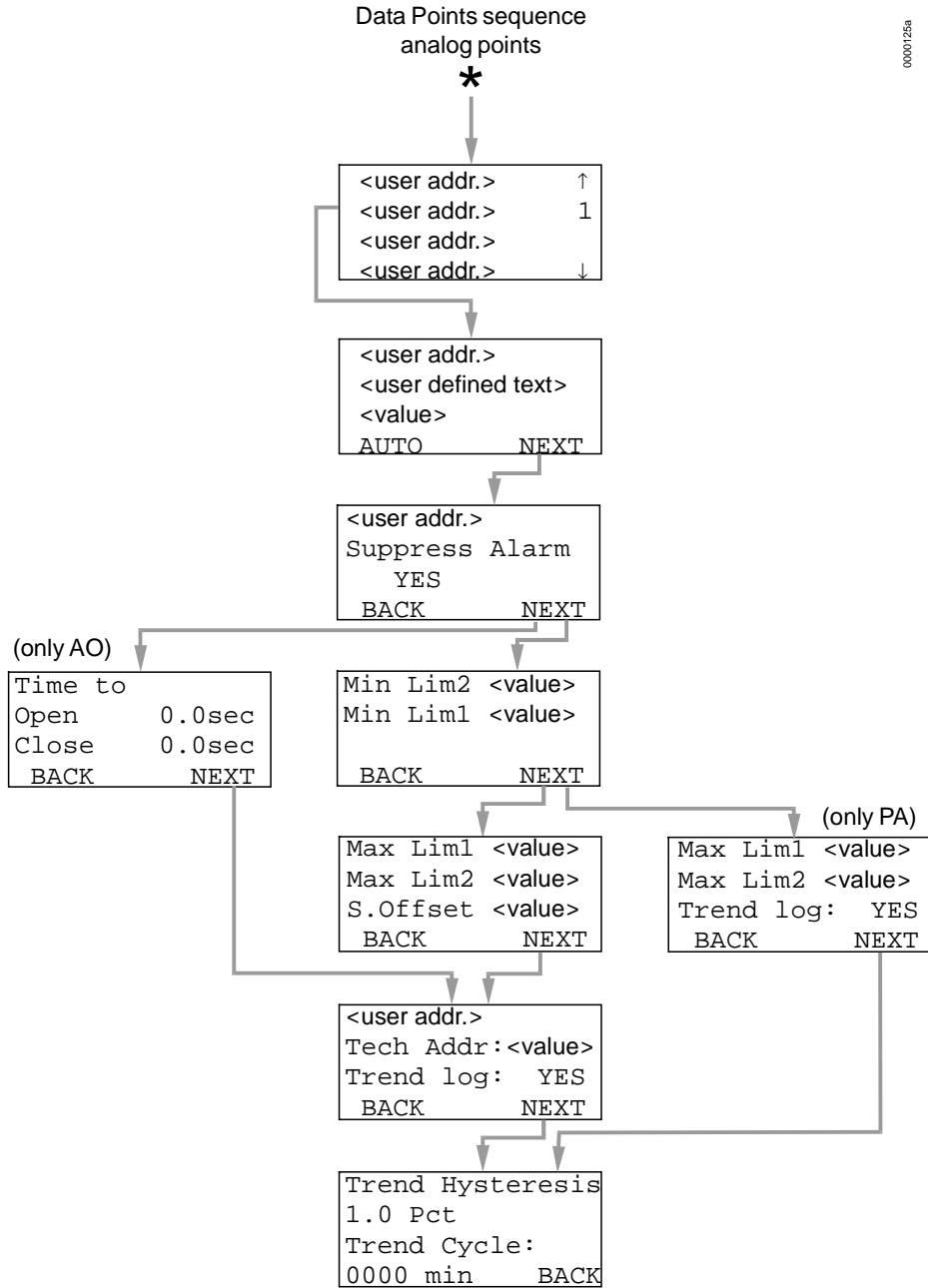
0000128b

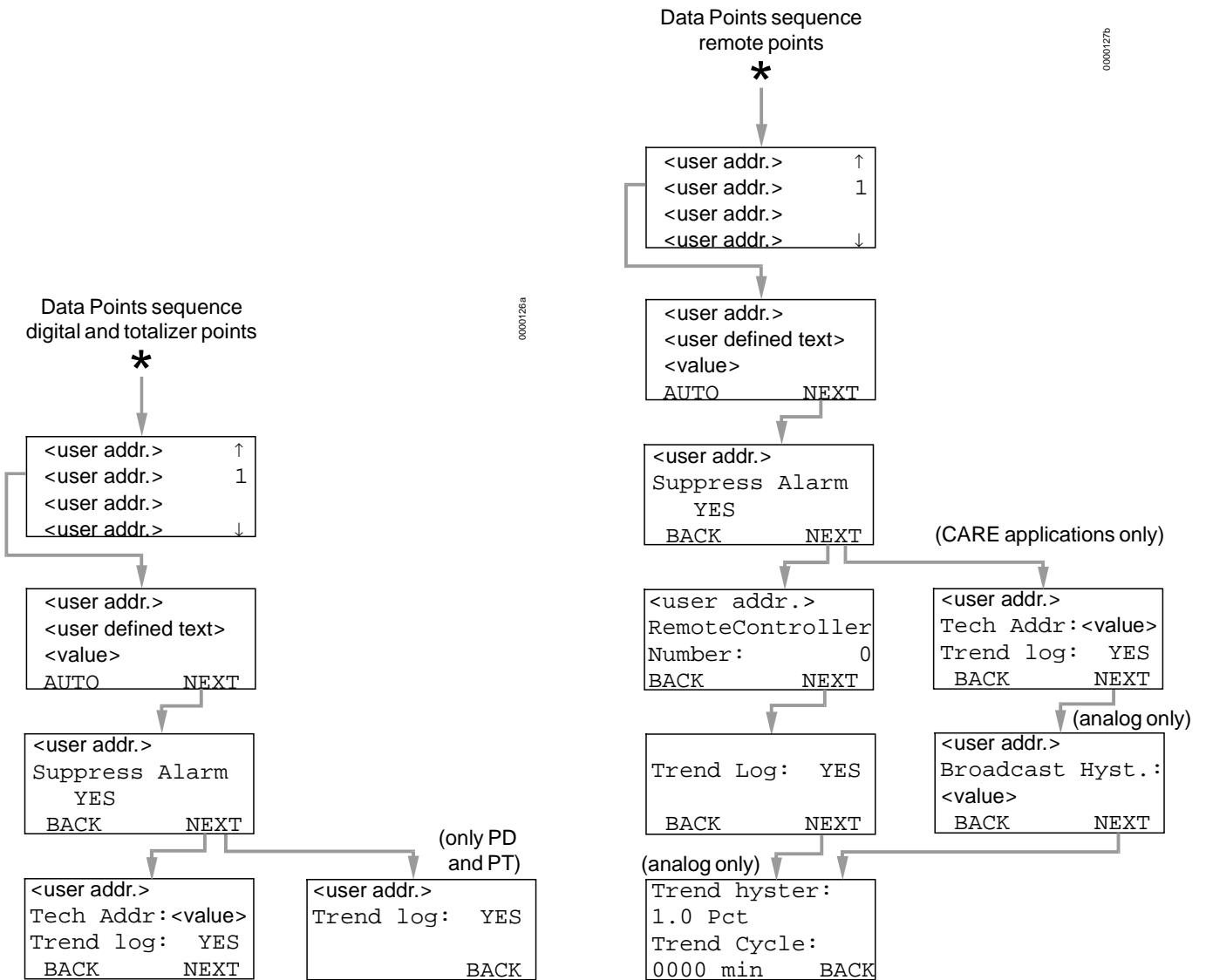
Separate overviews for data point screens.



Separate overview for these screens.

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Press the 'Data points / parameters' fast access key to get access to information on physical, remote and pseudo user addresses, parameters, system data and the DDC program cycle time.

The password entry screen will be displayed.



To get access to information on user addresses, parameters, system data and the DDC program cycle time requires the level-2 or level-3 password. Refer to the section 'Password Procedure' for help with password entry.

Enter the password. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

Data Points

```

▶Analog Input
▶Analog Output
▶Digital Input
  ▶NEXT
  
```

Select

- 'Analog Input', 'Analog Output' or 'Digital Input' to go into the 'Data points' sequence.
- 'NEXT' to proceed to the next screen.

Confirm with ENTER.

```

▶Digital Output
▶Totalizer
▶Hours Run
▶BACK      ▶NEXT
  
```

Select

- 'Digital Output' or 'Totalizer' to go into the 'Data points' sequence.
- 'Hours run' to go to the 'Hours run' screen.
- 'NEXT' to proceed to the next screen.
- 'BACK' to go to previous screen.

Confirm with ENTER.

```

▶M-Bus Data
▶Pseudo Analog
▶Pseudo Digital
▶BACK      ▶NEXT
  
```

Select

- 'M-Bus Data', 'Pseudo Analog' or 'Pseudo Digital' to go into the 'Data Points' sequence. M-Bus Data will only show special pseudo points related to the M-Bus. These special points also appear under the Pseudo Analog and Pseudo Digital.
- 'NEXT' to proceed to the next screen.
- 'BACK' to go to previous screen.

Confirm with ENTER.

```

▶Remote Analog
▶Remote Digital
▶Manual Operat.
▶BACK      ▶NEXT
  
```

Select

- 'Remote Analog' or 'Remote Digital' to go into the 'Remote points' sequence.
- 'Manual Operat.' to go to the 'Manual operation' screen.
- 'NEXT' to proceed to the next screen.

Confirm with ENTER. The sequence proceeds to the Parameters sequence discussed separately in a later section.

Data Points Sequence

The Data Points sequence will change depending upon the type of data point selected. Only the complete sequence for analog input points will be shown here as an example. Features unique to other data point types will be shown afterwards.

Selecting one of the data point types will display the first screen of the 'Data Points' sequence.

```

▶<user addr.>      ↑
▶<user addr.>      1
▶<user addr.>
▶<user addr.>      ↓
  
```

Move the cursor to select the data point from the list box using the arrow keys. Confirm with ENTER.

```

<user addr.>
<user defined text>
▶<value>
▶AUTO           ▶NEXT
  
```

In this screen the operating mode field can be changed from 'AUTO' to 'MANUAL' and vice versa and the setpoint value/status can be edited. Move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys. Confirm with ENTER.

If the operating mode is changed, an alarm screen with the message "Manual operation" or "Auto operation" appears. Confirm the alarm with CANCEL.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

```

<user addr.>
Suppress Alarm
  ▶YES
▶BACK           ▶NEXT
  
```

The alarm suppression attribute of the user address can be changed from 'YES' to 'NO' and vice versa. Move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the status using the '+' or '-' keys. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

```

Min lim2><value>
Min lim1><value>
▶BACK           ▶NEXT
  
```

This and the next screen will only be shown for analog input and pseudo analog data points. Change the value of the alarm minimum limit attributes by using the '+' and '-' keys. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

```

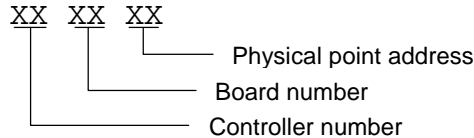
Max lim1><value>
Max lim2><value>
S.Offset><value>
▶BACK           ▶NEXT
  
```

Change the value of the alarm maximum limit attributes and the sensor offset by using the '+' and '-' keys. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

```
<user addr.>
Tech Addr <value>
Trend log: YES
▶BACK      ▶NEXT
```

This screen displays the technical address of the data point. The technical address is a number with 6 digits in pairs of two and stands for the following data:



For an explanation of Board Number, see the Test Options section. To enable trend logging for this data point, move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys. Confirm with ENTER. Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER. The following screen appears for Remote Analog points only:

```
Trend hysteresis
1.0 Pct
Trend Cycle:
0000 min ▶BACK
```

To change the Trend Hysteresis or Trend Cycle attributes, move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys.

NOTE If Trend Cycle is set to anything besides 0000, time-based trending is enabled. If Trend Cycle is set to 0000, then value hysteresis trending is enabled using the percent value show for Trend Hysteresis.

Remote Points

This screen is only visible for remote points and shows the controller number of a remote point.

```
<user addr.>
RemoteController
Number: 0
▶BACK      ▶NEXT
```

Edit the controller number using the '+' and '-' keys. Confirm with ENTER. For points which the controller receives from other controllers on the C-Bus, the controller number of the source of the point must be entered. For points that the controller is the source of, the default value of 0 is required.

Move the cursor to the 'NEXT' field. Confirm with ENTER.

Analog Outputs

This screen is only visible for analog outputs and shows - for example - the time an actuator needs to open and close a valve.

```

Time to
Open      0.0sec
Close     0.0sec
▶BACK     ▶NEXT

```

Edit the values using the '+' and '-' keys. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER.

CARE Applications

For applications created in CARE, the sequence for Remote Digital points ends with the second screen, showing user address, state, and mode. The sequence for Remote Analog points proceeds to the following one:

```

<user addr.>
Broadcast Hyst.:
<value>
▶BACK     ▶NEXT

```

This screen allows editing the Broadcast Hysteresis attribute. The attribute is available for remote analog datapoints in CARE applications (not applicable to configurable applications). Broadcast Hysteresis prevents new values from being broadcast to other controllers unless the datapoint value changes (positively or negatively) at least by the amount specified in this screen. Move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys. Confirm with ENTER.

Hours Run

```

Digital Output
Totalizer
▶Hours Run
BACK     NEXT

```

Move the cursor to select the 'Hours Run' field by using the arrow keys. Confirm with ENTER.

```

▶<user addr.>  ↑
<user addr.>  1
<user addr.>
<user addr.>  ↓

```

Move the cursor using the arrow keys to select the appropriate user address from the list box. Confirm with ENTER.

```

<user addr.>
▶<value>  hours
Switch <status>
▶<value>

```

The screen displays the total running hours logged together with the number of times the device has been switched on. If you have accessed the 'Data points / parameters' procedure with the level-3 password, the values can be changed using the '+' and '-' keys.

Manual Operation

```

▶Remote Analog
▶Remote Digital
▶Manual Operat.
▶BACK      ▶NEXT

```

Move the cursor to select the 'Manual Operat.' field by using the arrow keys. Confirm with ENTER.

```

▶<user addr.>  ↑
▶<user addr.>  1
▶<user addr.>
▶<user addr.>  ↓

```

Move the cursor to select the user address from the list box using the arrow keys. Confirm with ENTER.

```

<user addr.>
<user defined text>
▶<value>
▶MANUAL      ▶BACK

```

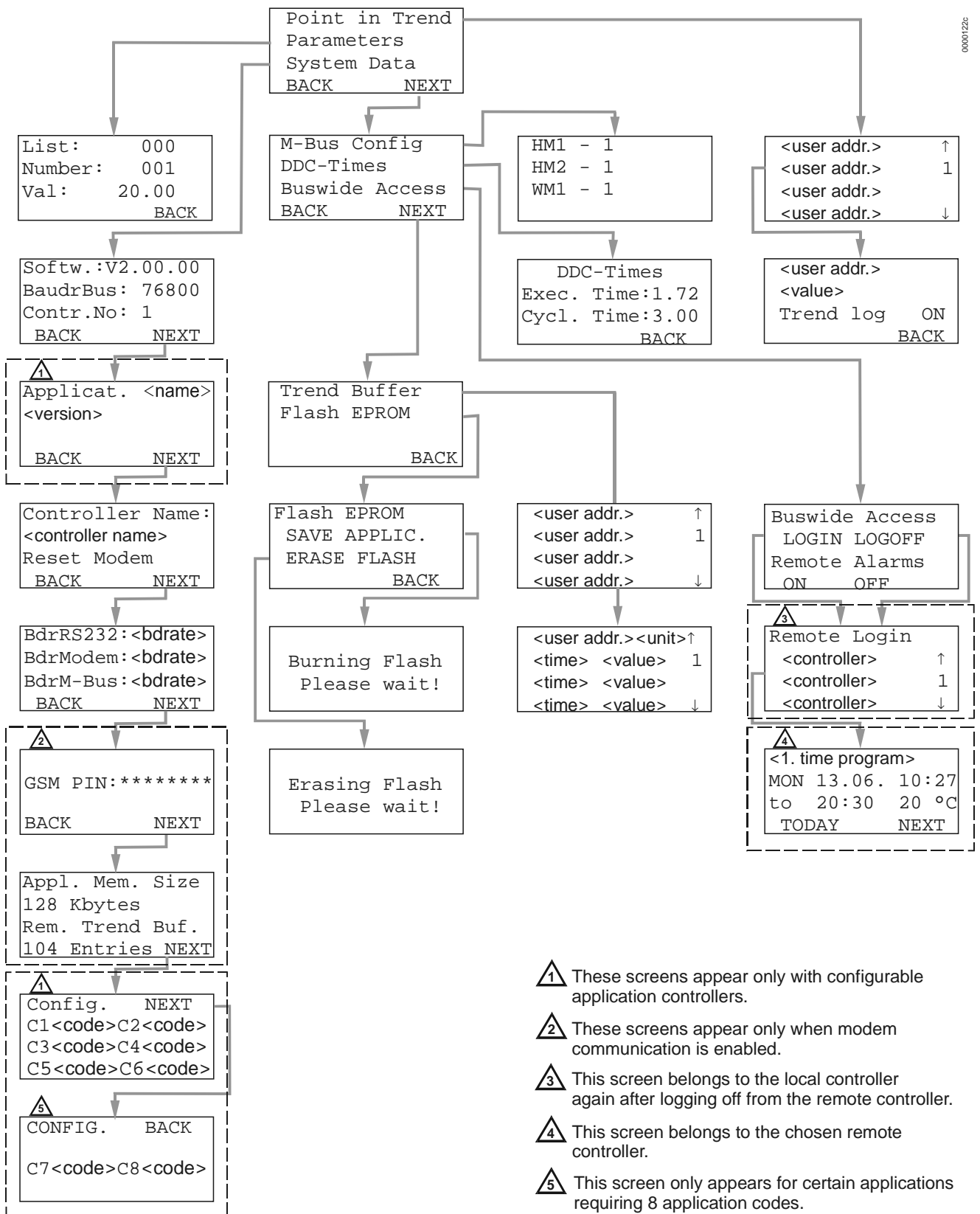
In this screen the operating mode field can be changed from 'MANUAL' to 'AUTO' and vice versa and the setpoint value/status can be edited. Move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys. Confirm with ENTER.

If the operating mode is changed, an alarm screen with the message "Manual operation" or "Auto operation" appears. Confirm the alarm with CANCEL.

Parameters

0000122c



- 1 These screens appear only with configurable application controllers.
- 2 These screens appear only when modem communication is enabled.
- 3 This screen belongs to the local controller again after logging off from the remote controller.
- 4 This screen belongs to the chosen remote controller.
- 5 This screen only appears for certain applications requiring 8 application codes.

```

▶Point in Trend
▶Parameters
▶System Data
▶BACK    ▶NEXT
    
```

Select 'NEXT' to display the second screen of the 'Parameters' menu. Confirm with ENTER.

```

▶M-Bus Config
▶DDC-Times
▶Buswide Access
▶BACK    ▶NEXT
    
```

Select 'NEXT' to display the third screen of the 'Parameters' menu. Confirm with ENTER.

```

▶Trend Buffer
▶Flash EPROM ▶

                ▶BACK
    
```

Point in Trend

```

▶Point in Trend
▶Parameters
▶System Data
▶BACK    ▶NEXT
    
```

Move the cursor to the 'Point in Trend' field using the arrow keys. Confirm with ENTER.

```

▶<user addr.>    ↑
▶<user addr.>    1
▶<user addr.>
▶<user addr.>    ↓
    
```

Move the cursor to select the data point from the list box using the arrow keys. Confirm with ENTER.

```

<user addr.>
<value>
Trend Log      ON
                ▶BACK
    
```

To enable trend logging for this data point, move the cursor to the appropriate field using the arrow keys. Confirm with ENTER.

Change the value/status using the '+' or '-' keys. Confirm with ENTER. Move the cursor to the 'BACK' field using the arrow keys. Confirm with ENTER to return to the list of Points in Trend.

Parameter List

```

▶Point in Trend
▶Parameters
▶System Data
▶BACK      ▶NEXT

```

Select the 'Parameter's field from the first screen of the Parameters sequence using the arrow keys to view or edit control parameters of devices connected to the controller. Confirm with ENTER. Editing parameters requires the level-3 password.

```

List      000
NO.       001
Val.▶20.00 °C
          ▶BACK

```

Select the 'value' field using the arrow keys to edit the parameter value. Confirm with ENTER.

Use the '+' or '-' keys to change the value. Confirm with ENTER.

Move the cursor to the 'BACK' field. Confirm with ENTER to return to the parameter list screen.

System Data

```

▶Point in Trend
▶Parameters
▶System Data
▶BACK      ▶NEXT

```

Move the cursor to the 'System Data' field using the arrow keys. Confirm with ENTER.

```

Softw.:V 2.00.00
BaudrBus:▶76800
Contr.NO:▶1
▶BACK      ▶NEXT

```

Move the cursor to the data field to be edited by using the arrow keys. Confirm with ENTER.

Change the values using the '+' or '-' keys. Confirm with ENTER.

Move the cursor to the 'NEXT' field using the arrow keys. Confirm with ENTER to proceed to the next screen (which depends upon the type of Application Module used).

```

Application<name>
<version>
▶BACK      ▶NEXT

```

This screen appears in configurable applications only.

This screen displays the name of the current application and its version. 'NEXT' is preselected to move to the controller name screen. Confirm with ENTER.

```

Controller Name:
<controller name>
Reset Modem
▶BACK          ▶NEXT
    
```

Move the cursor to the Controller Name field to edit it by using the arrow keys. Confirm with ENTER.

Select 'Reset Modem' to reset modem to factory setting (insure that the modem is connected). Confirm with ENTER.

IMPORTANT

Resetting the modem will restore the factory defaults and erase any custom initialization.

'NEXT' is preselected to move to the baudrate screen. Confirm with ENTER.

```

BdrRS232: <bdrate>
BdrModem: <bdrate>
BdrM-Bus: <bdrate>
▶BACK          ▶NEXT
    
```

Move the cursor to the baudrate field to be edited by using the arrow keys. Confirm with ENTER.

NOTE Password Level 2 is required to change the baudrates:

Change the values using the '+' or '-' keys. Confirm with ENTER.. Select 'NEXT' and confirm with ENTER. The following appears:

```

GSM PIN: *****
BACK          ▶NEXT
    
```

This screen appears only when modem communication is enabled.

Use the arrow keys to select the 'GSM PIN' field to enter the password for GSM communication. Press ENTER to enter the field. Press the '+' or '-' keys to increment/decrement the digit. Press ENTER to confirm the digit. Press left or right arrow key to move to the next digit. When all digits are entered press ENTER twice to confirm the PIN.

IMPORTANT

The GSM PIN must be entered right justified.

The modem baudrate must be set to 9600 for GSM communication to work.

Select 'NEXT' and confirm with ENTER.

```

Appl. Mem. Size
128 Kbytes
Rem. Trend Buf.
104 Entries▶NEXT
    
```

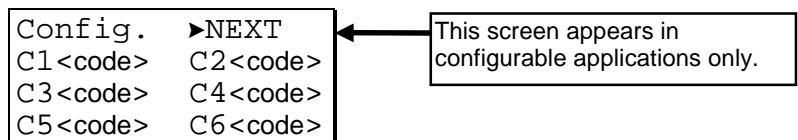
This screen appears only when modem communication is enabled.

This screen displays the size of the adjustable remote trend buffer. The number of entries (trend samples) that can be stored in the buffer for Remote Building Central A is determined by a calculation by the controller based upon the Application Memory Size entered in the Start-up sequence. The values shown can only be changed by resetting the controller and entering a new value for Appl. Mem. Size in the Start-up sequence.

NOTE Firmware V2.03.01 or later and CARE V2.02.00 or later enable the controller to run RACL partly from the Flash EPROM. Thus, the application memory calculation is different compared to older versions. This has to be considered during start up once you enter the application memory size.

1. CARE V2.02.00 or later:
The maximum application size is 128 Kbytes (128 Kbytes flash memory). Enter the application size calculated by CARE.
2. CARE versions before V2.02.00 without modem:
The maximum application size calculated by the old CARE is 113 Kbytes because the complete application including RACL runs from the RAM. The controller will not run if the application is bigger. You need to use CARE at least V2.02.00 if your applications require more than 113 Kbytes.
Applications bigger than 113 Kbytes without modem will not run from the flash memory after firmware download of OS V2.03.01 if they were done with CARE versions before V2.02.00.
3. CARE versions before V2.02.00 with modem:
The maximum application size calculated by the old CARE is 100 Kbytes. The controller will not run if the application is bigger. For the calculation of the trend buffer you need to enter 28 Kbytes plus the application size calculated by the old CARE version, e.g., CARE before V2.02.00 calculated 98 Kbytes, thus you will enter 126 Kbytes (98 Kbytes + 28 Kbytes) on the MMI of the controller.
We strongly recommend to use CARE V2.02.00 or later if you use modem communication. This will allow for applications with up to 128 Kbytes (128 Kbytes flash memory).
Applications bigger than 100 Kbytes with modem will not run from the flash memory after firmware download of OS V2.03.01 if they were done with CARE versions before V2.02.00.
4. Configurable applications:
Always enter 128 Kbyte for the application memory size.

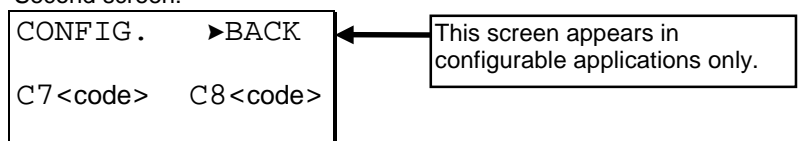
'NEXT' is preselected to move to the following screen. Confirm with ENTER. For configurable application controllers, the configuration codes screen is displayed as the final one in the sequence.



In this screen the codes of the configurable application can be viewed.

NOTE Not all applications have 6 configuration code numbers. Applications with 8 configuration codes have two on a second screen as shown below.

Second screen:



IMPORTANT

After performing a RESET all data in RAM and the configuration codes are lost.

To change the codes perform a RESET (press ARROW DOWN and MINUS simultaneously). The codes can then be changed in the 'Start-up' sequence.

Select BACK. Confirm with ENTER.

M-Bus Configuration

```

▶M-Bus Config
▶DDC-Times
▶Buswide Access
▶BACK    ▶NEXT
  
```

Move the cursor to the 'M-Bus Config' field using the arrow keys. Confirm with ENTER.

```

HM1 - 1
HM2 - 1
WM1 - 1
  
```

This screen displays the bus numbers for up to 3 heat meters and/or up to 2 water meters on the Meter Bus (up to max. 3 meters in total). A value of 0 or lower (-1 default) means no device is connected. Move the cursor using the arrow keys to the 'bus number' field. Confirm with ENTER.

Use the '+' or '-' keys to edit the value. Confirm with ENTER.

Select CANCEL to return to the previous screen.

DDC Program Cycle Times

```

▶M-Bus Config
▶DDC-Times
▶Buswide Access
▶BACK    ▶NEXT
  
```

Move the cursor to the 'DDC-Times' field using the arrow keys. Confirm with ENTER.

```

DDC-Times
Exec.Time: 1.72
Cycl.Time:▶3.00
        ▶BACK
  
```

This screen displays the RACL cycle time and execution time in seconds. The cycle time can be edited to optimize the system performance. Editing the cycle time requires the level-3 password. Move the cursor using the arrow keys to the 'Cycle time' field. Confirm with ENTER.

Use the '+' or '-' keys to edit the value. Confirm with ENTER.

Select BACK. Confirm with ENTER.

Buswide Access

```

▶M-Bus Config
▶DDC-Times
▶Buswide Access
▶BACK    ▶NEXT
  
```

The 'Buswide Access' function uses the MMI of this controller to view or to make changes to other EXCEL 50 controllers without MMI which are connected to the

same bus. Move the cursor to the 'Buswide Access' field using the arrow keys. Confirm with ENTER.

```

Buswide Access
  LOGIN LOGOFF
Remote Alarms
  ON     OFF
  
```

Select

- 'LOGIN' to log in to another controller on the same bus.
 - 'LOGOFF' to log off from the remote controller where you are logged in at the moment.
 - 'ON' to enable the logging of alarms coming from other controllers on the bus (these alarms can then be displayed after pressing the Alarms fast access key in the 'Buswide Alarms' menu).
 - 'OFF' to disable the logging of alarms coming from other controllers on the bus.
- Confirm with ENTER.

If 'LOGIN' has been selected, this screen will show up:

```

Remote Login
<controller>  ↑
<controller>  1
<controller>  ↓
  
```

Select the controller you want to log in. Confirm with ENTER.

IMPORTANT:

From now on all visible screens are the screens of the remote controller. The first screen of the remote controller will be the start screen. You can now access all screens of the remote controller. Use the 'Buswide Access' function via the 'Data Points / Parameters' fast access key to return to the screens of your own controller. Use the LOGOFF function or select your own controller in the controller list of the LOGIN function. If you do not press a key for 10 min, you will also be logged off. You will return to the controller list screen of the LOGIN function on your own controller.

Logging in to a controller that uses an XI581/582 MMI results in only part of the information from that controller being displayed on the Excel 50 screen due to the smaller screen size on the Excel 50 MMI.

If 'LOGOFF' has been selected, you will be logged off from the remote controller and return to the controller list screen of the LOGIN function on your own controller.

If 'ON' or 'OFF' has been selected, alarms from remote controllers will be displayed or suppressed. The screen will remain the same and no changes are visible.

Trend Buffer

```

▶Trend Buffer
▶Flash EPROM

                                ▶BACK
  
```

Move the cursor to the 'Trend Buffer' field using the arrow keys. Confirm with ENTER.

```

▶<user addr.>      ↑
▶<user addr.>      1
▶<user addr.>
▶<user addr.>      ↓

```

Move the cursor to select the data point from the list box using the arrow keys. Confirm with ENTER.

```

<user addr.> <unit> ↑
< time>     <value> 1
< time>     <value>
< time>     <value> ↓

```

In this screen the trend buffer entries for the data point can be viewed using the normal methods for moving through a list box.

Return to the list of data point in trend with CANCEL.

Flash EPROM

```

▶Trend Buffer
▶Flash EPROM

                ▶BACK

```

Move the cursor to the 'Flash EPROM' field using the arrow keys. Confirm with ENTER.

```

Flash EPROM
▶SAVE APPLIC.
▶ERASE FLASH
                ▶BACK

```

Select

- 'SAVE APPLIC.' to burn all data of the current application data into the Flash EPROM.
- 'ERASE FLASH' to erase all data from the Flash EPROM.

Confirm with ENTER.

If 'SAVE APPLIC.' has been selected, this screen will show up:

```

Burning Flash
please wait!

```

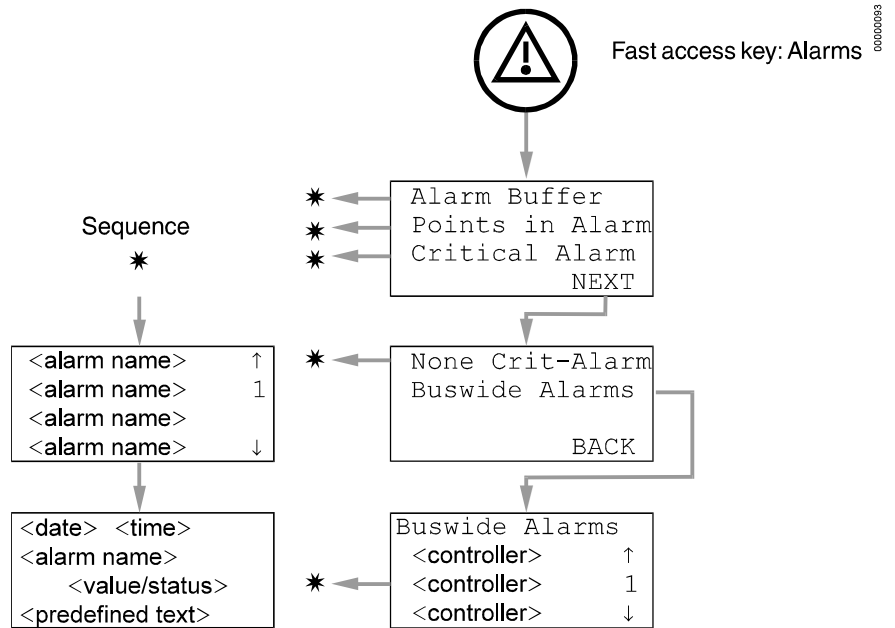
If 'ERASE FLASH' has been selected, this screen will show up:

```

Erasing Flash
please wait!

```


ALARMS KEY



Press the 'Alarms' fast access key to display alarm information on alarm history, points currently in an alarm condition, critical alarms, noncritical alarms and buswide alarms.

```

▶Alarm Buffer
▶Point in Alarm
▶Critical Alarm
▶NEXT
    
```

Confirm with ENTER to go to the second screen of the 'Alarms' procedure.

```

▶NoneCrit.Alarm
▶Buswide Alarms
▶BACK
    
```

Move the cursor using the arrow keys to select the desired item from the first or second page of the alarm menu, e.g. 'Point in alarm'. Confirm with ENTER.

```

▶<alarm name> ↑
▶<alarm name> 1
▶<alarm name> ↓
▶<alarm name> ↓
    
```

The screen displays all the points currently in alarm in the list box. To access more information about a specific alarm, move the cursor using the arrow keys to select the appropriate alarm name. Confirm with ENTER.

```

<date>      <time>
<alarm name>
           <value/status>
<predefined text>

```

Alarm information comprising the date, time, alarm name, value/status and alarm reason is displayed. Press CANCEL to return to the previous screen.

NOTE The same operating method as described for 'Point in alarm' applies to the 'Alarm buffer', 'Critical alarm' and 'Noncritical alarm'.

If the item 'Buswide alarms' has been chosen from the alarm menu, the following screen will show up:

```

Buswide Alarms
▶<contr.name> 01 X↑
▶<contr.name> 02 X↓
▶<contr.name> 03 X↓

```

This screen shows a list of all controllers connected to the bus. Move the cursor the appropriate controller. Confirm with ENTER.

```

▶<Alarm name>      ↑
▶<Alarm name>      1
▶<Alarm name>
▶<Alarm name>      ↓

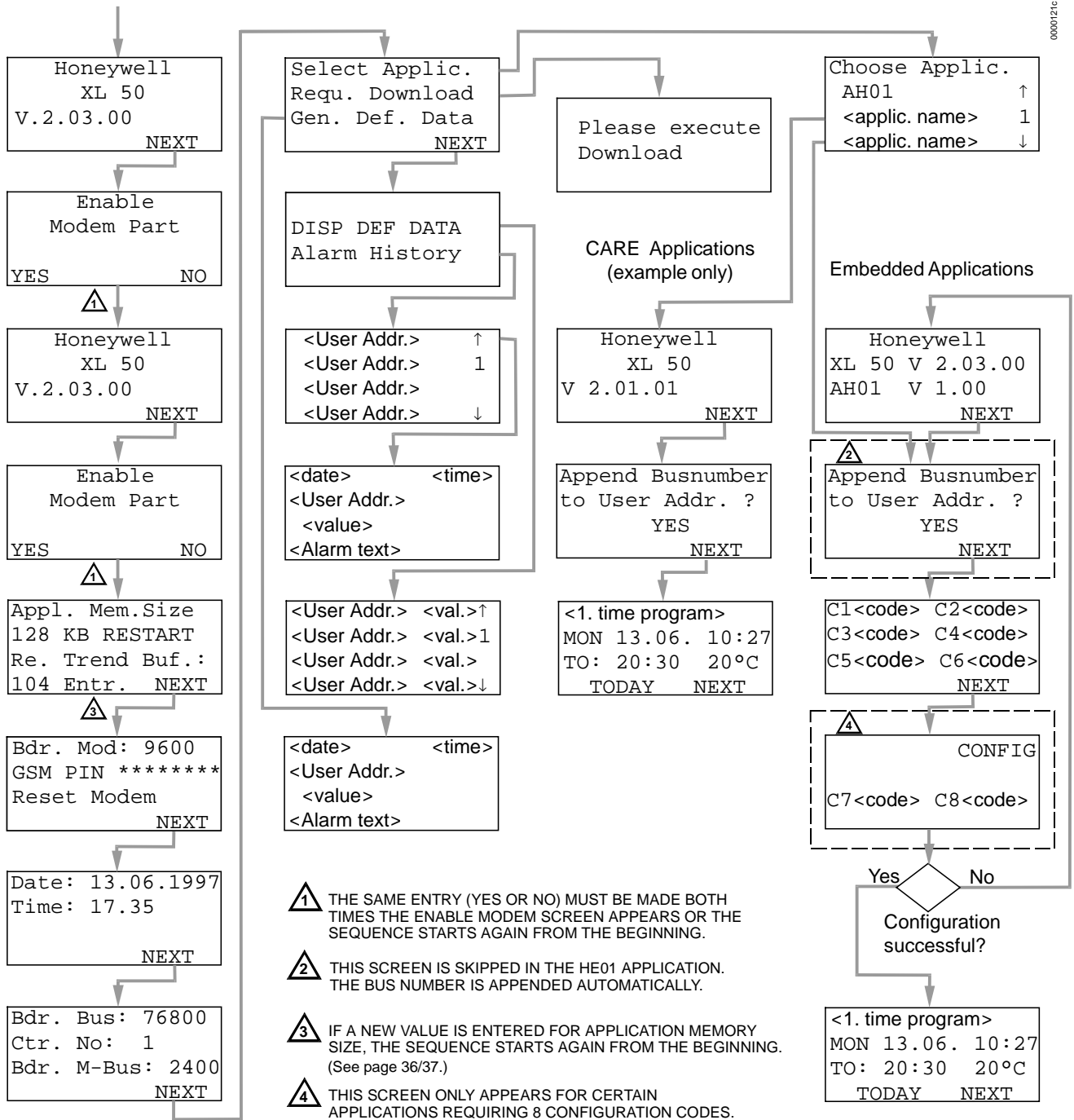
```

A list box with all alarms in the alarm buffer of the specified controller will be shown. Select the appropriate alarm. Confirm with ENTER.

START-UP SEQUENCE

0000121c

After powering up or RESET



After powering up the controller or after a RESET the initial screen of the 'Start Up' sequence appears. A RESET can be achieved by pressing the 'DOWN' and '-' keys simultaneously.

NOTE The screens of the Start Up sequence are always displayed in English as they are a part of the operating system.

```

Honeywell
  XL 50
V 2.03.00
      ►NEXT

```

This is the first screen of the Start-up sequence. It shows the version of the company name, the controller name and the firmware version. Confirm with ENTER.

```

      Enable
      Modem Part
YES          ►NO

```

This screen allows the user to enable modem communication. Select YES and confirm with ENTER.

```

Honeywell
  XL 50
V 2.03.00
      ►NEXT

```

The controller is reset, and the first screen of the Start-up sequence is shown. Confirm with ENTER.

```

      Enable
      Modem Part
YES          ►NO

```

The Enable Modem screen is repeated. The same YES/NO response selected previously must be selected again. If YES was selected the first time and NO is selected now (or visa-versa), the sequence will start over from the beginning. Select YES and confirm with ENTER.

If modem communication has been enabled, the following two screens appear, otherwise the sequence proceeds directly to the Date and Time screen.

```

Appl. Mem. Size
128 KB RESTART
Re. Trend Buf.:
104 Entr. ►NEXT

```

This screen is used to increase the size of the adjustable remote trend buffer by reducing the application memory size. The number of entries (trend samples) that can be stored in the buffer for Remote Building Central A is determined by a calculation by the controller based upon the Application Memory Size entered in this screen (remote trend buffer = (128 Kbytes-appl. Size) * 1024 bytes / 47 bytes). The default for Appl. Mem. Size is 128. The default number of Remote Trend Buffer Entries is 104.

Also see page 50 'Adjustable Remote Trend Buffer (V2.03.x)'.

If a new value for Appl. Mem. Size has not been entered, the cursor is at NEXT. Confirm with ENTER and continue to the next screen.

To increase the size of the buffer, use the arrow keys to select the digits for 'Appl. Mem. Size' and use the '+' and '-' keys to enter a new value. Then select RESTART and confirm with ENTER. The controller will reset again, and the 'Start-up' sequence starts again from the beginning.

IMPORTANT

If the application being downloaded exceeds the Maximum Application Size entered in this screen, an error message will occur and the download will not be executed (see NOTE on pages 36/37).

When this screen appears again, the cursor is at NEXT. The new application memory size and the new number of trend samples calculated by the controller are shown. Confirm with ENTER and continue to the next screen.

```
Bdr. Mod.  9600
GSM PIN  *****
Reset Modem
                ▶NEXT
```

This screen only appears if modem communication is enabled. Select:

- 'Bdr. Mod.' to set the baud rate for the modem/ISDN terminal adapter.
- 'GSM PIN' to set the GSM Personal Identification Number (PIN).
- 'Reset Modem' to return modem to factory settings, erasing any custom modem initialization. See Remote Communications section for more information.

Move the cursor with the arrow keys to the appropriate fields. Use the '+' and '-' keys to edit the fields.

NOTE The GSM PIN must be entered right-justified.

NOTE For GSM communication, the modem baud rate must be set at 9600.

Or select Reset Modem to send a reset command to the modem (if one is not yet attached to the controller, the controller will send a reset when one is detected).

IMPORTANT

Resetting the modem will restore the factory defaults and erase any custom initialization.

Confirm with ENTER.

```
Date:▶13.06.1998
Time:▶17:35
                ▶NEXT
```

Select:

- the 'Date' field to enter the actual date.
- the 'Time' field to enter the actual time.

Confirm with ENTER.

If 'Date' is selected:

Set the date using the '+' or '-' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Select BACK. Confirm with ENTER to return to the previous screen.

NOTE The date must be entered in the following format: DD. MM. YYYY; for example, 23. July 1997 must be entered as 23. 07. 1997. Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.

If 'Time' is selected:

Set the time using the '+' or '-' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Use the CANCEL key to return to the previous screen.

NOTE The time must be entered in the following format: HH:MM in 24 hour clock format; for example: 9:30 a.m. must be 09:30 and 9:30 p.m. must be 21:30. Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.

Move the cursor to the 'NEXT' field with the ARROW keys. Confirm with ENTER.

```
Bdr. Bus:▶76800
Ctr No:▶1
Bdr. M-Bus:▶2400
          ▶NEXT
```

Select

- 'Bdr. Bus' to set the baud rate for the C-Bus.
- 'Ctr No' to set the controller number.
- 'Bdr. M-Bus' to set the baud rate for the Meter Bus.

Move the cursor with the arrow keys to the appropriate fields to set baud rates for the C-Bus and M-Bus (if applicable) and the controller number. Use the '+' and '-' keys to edit the fields. Confirm with ENTER.

IMPORTANT

If no controller number is set or if the number shown is not reconfirmed, the controller will not go online on the C-Bus after start-up.

NOTE Baud rate settings appear for all controller versions but are ignored if not applicable for the hardware.

Move the cursor to the 'NEXT' field with the arrow keys. Confirm with ENTER.

```
▶Select Applic.
▶Requ. Download
▶Gen. Def. Data
          ▶NEXT
```

Select:

- 'Select Applic.' to choose the application manually.
 - 'Requ. Download' to download an application via the XI584 PC MMI or the C-Bus.
 - 'Gen Def Data' to set up the test mode with default user addresses.
- Confirm with ENTER.

If 'Select Applic.' has been selected this screen will show up:

```
Select Applic.
▶AH01          ↑
<application name> 1
<application name> ↓
```

Select the application using the ARROW keys. Confirm with ENTER.

```
Honeywell
XL 50 V 2.03.00
AH01 V 1.00 ←
          ▶NEXT
```

This line appears in configurable applications only.

The initialization screen of the chosen application will show up. It displays information about the versions of the controller and the application. Confirm with ENTER.

If the Excel 50 controller is connected to a C-Bus, unless using the HE01 application module (bus number appended automatically), this screen will show up:

```

Append Busnumber
to User Addr. ?
  ▶YES
                        ▶NEXT
    
```

Move the cursor to the 'YES' field. Confirm with ENTER.

IMPORTANT

If more than one Excel 50 Controller with the same application program is connected to the C-Bus, the user addresses must have the bus numbers appended to them.

For HE01 applications, bus numbers are appended automatically except for remote points which must have the remote controller number entered in through the Data Points sequence (see Data Points section).

Move the cursor to the 'NEXT' field using the ARROW keys. Confirm with ENTER.

```

                        ▶CONFIG
C1▶-1      C2▶-1
C3▶-1      C4▶-1
C5▶-1      C6▶-1
    
```

This screen appears in configurable applications only.

In this screen the codes of the configurable application can be changed. The application codes can be generated with the 'LIZARD-Excel 50 Application Selector'. This screen does not appear with standard and custom CARE applications.

NOTE Not all applications have 6 configuration code numbers. Applications with 8 configuration codes have two on a second screen as shown below.

First screen:

```

C1▶-1      C2▶-1
C3▶-1      C4▶-1
C5▶-1      C6▶-1
                        ▶NEXT
    
```

Second screen:

```

                        ▶CONFIG
C7▶-1      C8▶-1
    
```

NOTE If the 'LIZARD-Excel 50 Application Selector' is not available, please contact your local Honeywell branch for support.

Select the appropriate code and change its value using the '+' and '-' keys.

Move the cursor to the 'CONFIG' field. Confirm with ENTER.

If the codes entered in the screen are allowed, the default screen of normal operation will show up:

```

<1. time program>
MON 13.06. 10:27
TO: 20:30 20°C
  ▶TODAY  ▶NEXT
    
```

If one or more codes entered are not allowed, the initialization screen will show up again. Change the screens by selecting NEXT and confirming with ENTER until you have reached the configuration screen again. Codes which are not allowed have the value '-1' instead of the previously entered code. Change the codes until all codes are correct.

You will now come to the default screen of normal operation:

```

<1. time program>
MON 13.06. 10:27
TO: 20:30 20°C
▶TODAY    ▶NEXT
  
```

Refer to the chapter 'Plant key' for information about this screen.

Test Options

```

▶Select Applic.
▶Requ. Download
▶Gen. Def. Data
                ▶NEXT
  
```

If 'Gen. Def. Data' has been selected from the Select Application/Request Download/Gen. Def. Data screen, default user addresses are generated following the following pattern:

```

AI0101  — Analog input, board 1, input 1
AO0201  — Analog output, board 2, output 1
DI0301  — Digital input, board 3, input 1
DO0401  — Digital output, board 4, output 1
  
```

NOTE The board numbers shown above are internal references and are not relevant to the User. In Excel 50 Controllers the numbers are fixed for the I/O type, i.e. analog inputs are always AI01, digital inputs are always DI03, etc.

After generating the default addresses, a screen will display the most recent alarm, if one exists

```

<date.>      <time>
<user addr.>
  <value>
<alarm text>
  
```

Press CANCEL to return to the previous screen.

```

▶Select Applic.
▶Requ. Download
▶Gen. Def. Data
                ▶NEXT
  
```

Select NEXT and confirm with ENTER. The second screen of test options appears:


```

▶DISP DEF DATA
▶ALARM HISTORY
    
```

Select

- 'DISP DEF DATA' to display I/O points for checking values and manually setting outputs for testing.
 - 'ALARM HISTORY' to display current alarms. This feature allows the system to be checked out by a single person opening and closing inputs and then later reading the alarm buffer to see if they were detected by the controller.
- Confirm with ENTER.

If 'DISP DEF DATA' has been selected, the following screen will be displayed showing all default user addresses and their current values.

```

▶<user addr.> <val>↑
▶<user addr.> <val>↓
▶<user addr.> <val>
▶<user addr.> <val>↓
    
```

To manually set outputs, move the cursor to select the output point from the list box using the arrow keys. Confirm with ENTER.

For analog points the following screen is displayed

```

<user addr.>
STATE/VALUE :
▶ 0.00%
    
```

Press ENTER to select the value. Change the value using the '+' or '-' keys. Confirm with ENTER. For digital points the following screen is displayed

```

<user addr.>
STATE/VALUE :
▶0 %
    
```

Press ENTER to select the value. Change the value/state using the '+' or '-' keys. Confirm with ENTER.

Press CANCEL to return to the previous screen (list of user addresses).

If 'ALARM HISTORY' has been selected, the following screen will be displayed showing all points in alarm as well as any system alarms (max. 100 entries):

```

▶<user addr.> ↑
▶<user addr.> ↓
▶<user addr.>
▶<user addr.> ↓
    
```

NOTE Alarms are generated for changes of state/value on inputs, which allows shorting and opening the inputs at the switches and/or sensors and then checking the alarm buffer to verify the wiring.

To view an alarm, move the cursor to select the default user address from the list box using the arrow keys. Confirm with ENTER. The following screen will appear:

<date.>	<time.>
<user addr.>	
<value.>	
<alarm text.>	

Press CANCEL to return to the previous screen.

IMPORTANT

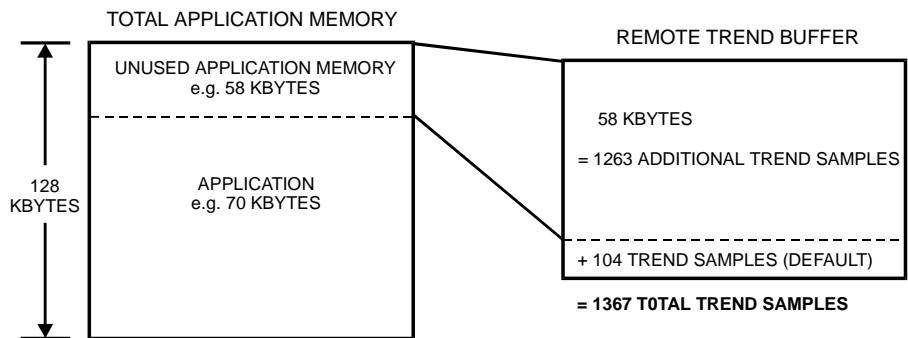
Reset the controller after using the test options to clear the alarm buffer.

Adjustable Remote Trend Buffer (V2.03.x)

With firmware 2.03.00 or newer, memory that is not used by the application can be used as additional remote trend buffer for XBS Central A. By maximizing the trend buffer size, the number of times the controller must dial-up the central is minimized as is the risk of trend samples being overwritten due to a full buffer.

By exploiting this feature, it is possible to use the EXCEL controller as a pure trending device, when no application is downloaded.

The amount of additional memory available for the remote trend buffer is determined by the value for "Application Memory Size" entered with the MMI during the start-up sequence of the controller. This number is subtracted from the total application memory, and the resulting number, in Kbytes, is the additional remote trend buffer size. The following figure illustrates the adjustable remote trend buffer.



Adjustable remote trend buffer example.

The maximum number of trend samples will be displayed on the MMI once a value for application memory size is entered.

The adjustment range for the application memory size is the following:

Application memory size	Trend samples in remote trend buffer
Default: 128 Kbyte	104 per central
Maximum: 128 Kbyte	104 per central
Minimum: 10 Kbyte	104 per central PLUS "N" for central A

>N< is approximately:

$$(128 \text{ Kbytes} - \text{application size in Kbytes}) \times 1024 \text{ bytes} / 47 \text{ bytes}$$

Hence, the maximum of >n< is 2570 trend samples.

This means, for a minimum application size of 10 Kbytes there will be 2674 (2570 + 104) trend samples for central A and 104 trend samples for central B and C each.

If an application being downloaded exceeds the application memory size, a warning message will be displayed on the MMI, and the download will not be executed.

OPERATOR ACCESS LEVELS

Password protection ensures that only authorized personnel have access to system data to ensure reliable and trouble-free operation using the preset values.

The Operator access level 1 is not password-protected. This level enables only to read data such as setpoints, switching time points and operating hours.

The Operator access levels 2 and 3 are password-protected. Authorized personnel can edit the preset values at those levels. Operator access levels 2 and 3 have different passwords.

Operator access level 1	- read only (default values)	- no password
Operator access level 2	- read and limited changes	- level-2 password
Operator access level 3	- read and make unlimited changes	- level-3 password

TIME PROGRAM DESCRIPTION

Direct access to the time program menu can be obtained via the fast access key. Pressing the time program fast access key displays the password entry screen. Refer to the section entitled 'Password' for help with password entry.

Time programs are used to assign setpoint values and control status conditions to specific user addresses at specific times.

The time program can be adapted to suit the application. A time program comprises the system time (which includes the actual date, time and daylight saving time) and various time-related programs, the daily time programs, the weekly time program (created from daily time programs) and the annual time program. Time program switching points can be edited via operator access levels 2 and 3.

System Time

The system time includes the actual date and time and the start and end date of the daylight saving time. It regulates all analog and digital control strategies implemented in the application software program.

Daily Time Program

Switching point times with the desired value/status for the appropriate user addresses are entered into the daily time program.

Example: The daily time program 'Workday' has several switching point times:

<u>Workday</u>	<u>06:00</u>	<u>AH1_occ</u>
	<u>08:00</u>	<u>AH1_tsp</u>
	<u>09:00</u>	<u>AH1_psp</u>

Weekly Time Program

Daily time programs are assigned to each day of the week in the weekly time program. The weekly time program is automatically repeated every week and creates the normal annual time program.

Example 1: Monday to Friday inclusive require the same daily time program. Saturday and Sunday require a different daily time program:

<u>Monday</u>	<u>Workday</u>
<u>Tuesday</u>	<u>Workday</u>
<u>Wednesday</u>	<u>Workday</u>
<u>Thursday</u>	<u>Workday</u>
<u>Friday</u>	<u>Workday</u>
<u>Saturday</u>	<u>Weekend</u>
<u>Sunday</u>	<u>Weekend</u>

Example 2: Thursday requires a different daily program and is assigned to the daily time program DP_2:

<u>Monday</u>	<u>Workday</u>
<u>Tuesday</u>	<u>Workday</u>
<u>Wednesday</u>	<u>Workday</u>
<u>Thursday</u>	<u>DP_2</u>
<u>Friday</u>	<u>Workday</u>
<u>Saturday</u>	<u>Weekend</u>
<u>Sunday</u>	<u>Weekend</u>

NOTE If the 'COPY' function is used to create a new daily time program the next free daily time program will be assigned. This means that the default daily time program can be overridden by a new daily time program. Daily time programs cannot be deleted from the PC central.

Annual Time Program

The annual time program can be changed for a specific period. A daily time program out of the daily time program list can be assigned to a period which is specified by the beginning and end date.

Example: The annual program consists of the normal weekly program. Only during the holiday period every day is assigned to the 'Weekend' daily time program.

<u>From 01.01.1997 to 15.07.1997</u>	<u>normal weekly program</u>
<u>From 15.07.1997 to 30.08.1997</u>	<u>'Weekend' daily time program</u>
<u>From 30.08.1997 to 31.12.1997</u>	<u>normal weekly program</u>

Optimization

The optimization function causes optimization of a switching point. It has two states, ON and OFF.

The optimization compensates the time an environment needs to reach a wanted condition (temperature, humidity, etc.) by bringing forward the switching point of the corresponding device.

NOTE The optimization can only be set to ON if the user address of the device is suitable for optimization.

Example: If the optimization is ON, a heating plant is switched on early in order to have your home at the required setpoint level by a particular time.

Programmed switching point:
6:00 to 20 °C

Real switching point:
4:52 to heating ON

The difference between the programmed and real switching point is the estimated time a room needs to warm up under the current conditions.

DATA POINTS / PARAMETERS DESCRIPTION

Direct access to the 'Data points / parameters' menu can be obtained via the fast access key. Pressing the 'Data points / parameters' fast access key displays the password entry screen. Refer to the section entitled 'Password procedure' for help with password entry. Access to edit value/status depends on the operator access level.

User Address

The Excel 50 controller has physical, remote and pseudo data points. The user address is an attribute of the data point. Each user address represents one data point.

Information can be obtained about the following data point types:

Physical Data Points

analog inputs
analog outputs
digital inputs
digital outputs
totalizers

Physical data points are inputs and outputs directly connected to a hardware device such as a sensor or an actuator. The Excel 50 controller has the facility for 22 physical data points.

Pseudo Data Points

pseudo analog
pseudo digital
pseudo totalizers

Pseudo data points are generated in software to achieve the application program. They are not connected to any hardware device. The Excel 50 can have a maximum of 128 pseudo points of each type.

Remote Points (HE01 only)

remote analog
remote digital

Remote points (also known as global points) are data points which are used by more than one controller on the same bus. The controller number for the device that is the source of remote point must be entered via MMI in the controller receiving the point.

The data points / parameters fast access key also provides access to the following data

parameters
system data
DDC program cycle time
M-Bus configuration

Data Point Attributes

The following data points are available on the operator's terminal.
Different attributes are assigned to each data point type as follows:

Analog Inputs

User address
Descriptor
Technical address
Operating mode
Value
Manual value
Engineering unit
Suppress alarm
Min limit 2
Min limit 1
Max limit 1
Max limit 2
Sensor offset
Trend Log
Trend Hysteresis
Trend Cycle

Digital Outputs

User address
Descriptor
Technical address
Operating mode
Value
Manual value
Alarm reporting
Hours run
Suppress alarm
Trend Log

Pseudo Digital Points

User address
Descriptor
Operating mode
Value
Manual value
Suppress alarm
Hours run
Trend Log

Analog Outputs

User address
Descriptor
Technical address
Operating mode
Value
Manual value
Engineering unit
Suppress alarm
Time to open/time to close
Trend Log
Trend Hysteresis
Trend Cycle

Totalizer Inputs

User address
Descriptor
Technical address
Operating mode
Value
Manual value
Suppress alarm
Trend Log

Pseudo Totalizer Inputs

User address
Descriptor
Operating mode
Value
Manual value
Suppress alarm
Trend Log

Digital Inputs

User address
Descriptor
Technical address
Operating mode
Value
Manual value
Alarm reporting
Hours run
Suppress alarm
Trend Log

Pseudo Analog Points

User address
Descriptor
Operating mode
Value
Manual value
Engineering unit
Suppress alarm
Min limit 2
Min limit 1
Max limit 1
Max limit 2
Trend Log
Trend Hysteresis
Trend Cycle

Remote Data Points (HE01 only)

User address
Technical address
Value
Engineering unit
Trend Log

Operating Mode

This attribute enables the user to switch between manual and automatic operation.

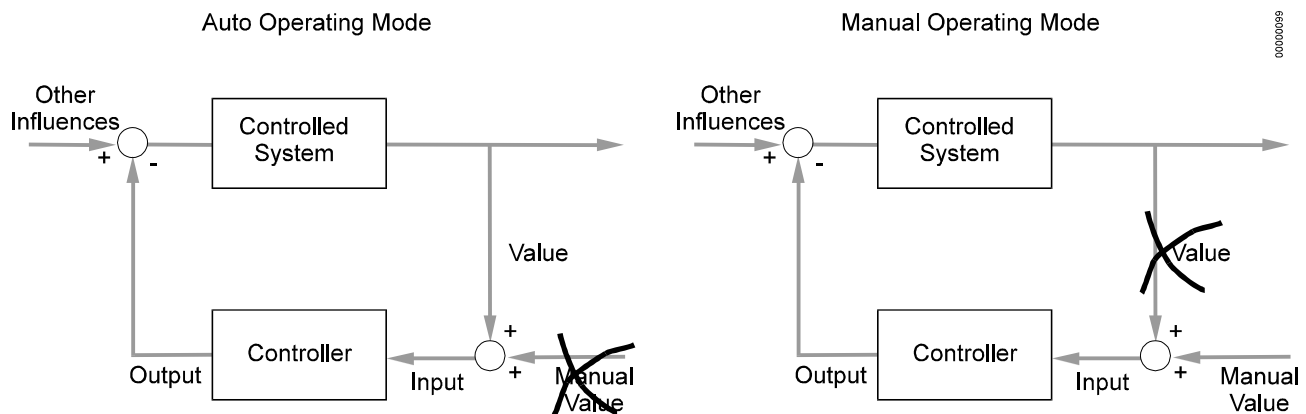
Automatic Operation

Under normal automatic operation the controller processes the values at the inputs, e.g. from temperature sensors. For outputs, under normal operation, the status shown by the user / time program is adopted, e.g. 'Heating circuit pump off'. The feedback loop of the control system is closed.

Manual Operation

During manual operation the controller uses the manual values, e. g. 'Flow temperature setpoint = 60 °C'. Outputs adopt the preselected condition, e. g. 'Heating circuit pump on'. The feedback loop of the control system is interrupted.

For automatic operation the 'Operating mode' attribute contains the inputs 'Auto' and 'Manual'. Each change from automatic to manual and back again generates a critical alarm.



Value

When the controller is working in automatic mode (the 'Operating mode' attribute is set to 'Auto') the value or the current status being processed by the application program can be found in the 'Value' attribute. The 'Value' attribute for an analog input is, for example, the current room temperature of 21 °C / 70 °F. The 'Value' attribute for a pump switched by the digital output is, for example, the current status 'ON'.

Manual Value

When the controller is working in manual mode (the 'Operating mode' attribute is set to 'Manual') the preset manual values can be found in the 'Manual value' attribute.

Example:

In the example shown the 'Operating mode' attribute is set to 'Manual', i.e. the data specified manually is written into the 'Manual value' attribute, processed in the controller and passed on to an output. The user can, of course, recall the measured value coming from the 'Value' attribute, but this has no effect on the application program.

Hours Run

An hours run log can be carried out for digital data points (physical and pseudo), e.g. logging the hours run by a heating circuit pump. The accumulated hours run are displayed in the 'Hours run' attribute. Hours run values have a resolution of 1 minute.

Technical Address

The Excel 50 controller has 22 physical inputs / outputs. Each physical data point has a fixed technical address which contains information about the controller number, the board number and the input / output number on the board.

User Address

The 14-character user address for each data point (physical and pseudo) can be displayed on the operator's terminal. Access to edit all physical and pseudo data points depends on the operator's access level.

When more than one controller with the same application program exists on the C-bus the controller number must be attached to the user address and the controller name to make the user addresses unique.

The user addresses can be changed during the start-up or cold start via the operator's terminal by confirming with 'YES' in the 'Append bus number to user address?' screen. Refer to the diagram below.

If the 'YES' field is selected the controller number will be automatically attached to the controller name (characters 14 and 15) and to the user address (characters 17 and 18).

Example The user address is 'RoomTemp'.
Controller number: **02**

If the user address is changed the text string will be displayed as follows:

RoomTemp-----02

The controller number is only displayed on the PC central and not on the operator's terminal.

Suppress Alarm

The attribute 'Suppress alarm' gives the user the possibility to choose which Point Alarm will be generated and which one not.

In case 'Suppress alarm' is set to YES, there will be no alarm generated, even if the alarm condition of this data point occurs.

ALARM DESCRIPTION

Direct access to the alarm handling menu can be obtained via the 'Alarms' fast access key. The alarm handling facility within the controller stores alarm data for immediate display at the operator's terminal.

Pressing the 'Alarms' fast access key displays the main alarm menu screen to enable selection of the following:

- alarm buffer
- points in alarm
- critical alarms
- noncritical alarms.

Typical Alarm Information

- Date and time the alarm occurred
- User address of the point in alarm
- Value/status of the point in alarm
- Alarm text, e.g. MIN1 alarm.

Alarm Buffer The last 99 alarms are stored in the alarm buffer. They contain the user address, alarm text, date and time. When the alarm memory capacity is exceeded the first alarm is overwritten. Alarms are organized on a first in, first out basis. The contents of the alarm buffer can be displayed on the operator's terminal.

Point in Alarm All data points currently in an alarm condition, i.e. the alarm limit for an analog point or the alarm status for a digital point has been reached, can be displayed on the operator's terminal. When selecting this option the user address and associated alarm text will be displayed.

Critical and Noncritical Alarms The following attributes can generate alarms and will write them into the alarm buffer as well as sending them to the PC central via the C-Bus.

Alarm Attributes	operating mode	always a critical alarm
	minimum limit	optional critical or alarm status
	maximum limit	optional critical or totalizer alarm status

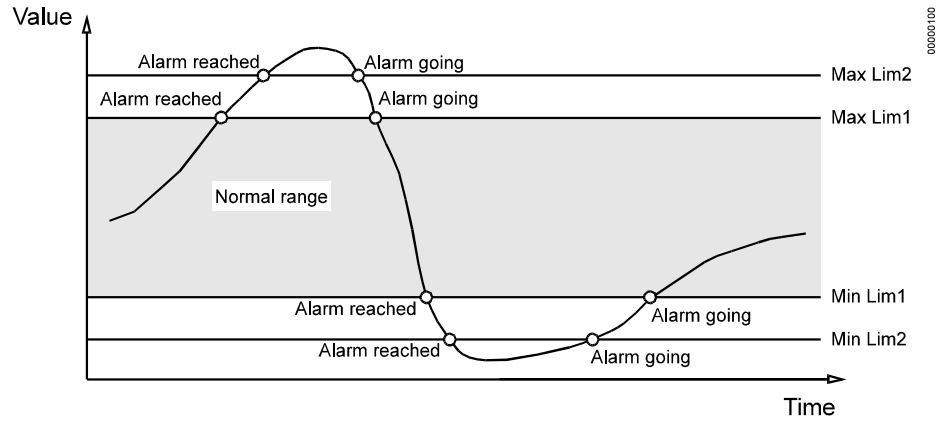
While the 'Operating mode' attribute always results in a critical alarm, the 'Alarm type' attribute offers a choice of critical or noncritical alarm classification for the 'Min/Max limits', 'Totalizer' and 'Alarm status' attributes.

System Alarms Description Operating malfunctions that arise within a controller, e.g. power failure or during communication with another Excel 5000 device, are displayed on the operator's terminal.

System alarms are always critical alarms.

Min Limit / Max Limit Monitoring Two maximum limits ('Max Lim1' and 'Max Lim2') and two minimum limits ('Min Lim1' and 'Min Lim2') can be independently set for physical and pseudo analog inputs.

The limit values can be changed using the operator sequence. Each time a limit value is reached, irrespective of direction, an alarm is generated.



The following four limit values are available:

- minimum limit 2
- minimum limit 1
- maximum limit 1
- maximum limit 2

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