Honeywell

Excel 50

CONTROLLER

EXCEL 5000 OPEN™ SYSTEM

USER GUIDE

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CONTENTS

REVISION OVERVIEW

The following pages have been changed from the previous issue of this document:

page	change
8	The meaning of the string "***" has been explained.
39	The consequences of setting the bus ID to a non-zero value have been explained.
52	Additional information on the bus ID has been added.
54	A screen which will appear if the Excel 50 controller is connected to a C-bus has been explained and the necessity of appending bus numbers to the user addresses when multiple Excel 50 controllers with the same application program are attached to the C-bus described.
64	The necessity of appending the controller number and the controller name when multiple Excel 50 controllers having the same configurable application program are attached to the C-bus is described.

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 its MMI or an external interface.

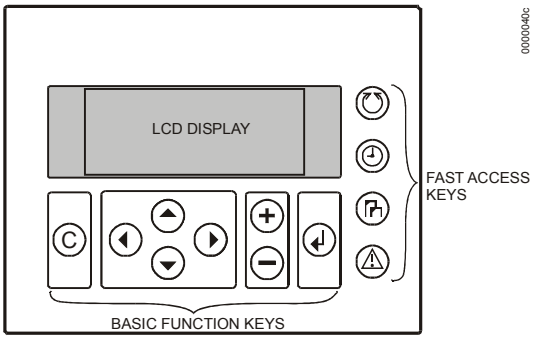
2. The Excel 50 controller can also be used with standard or custom applications created with the CARE software package and downloaded into the controller. Custom applications may have different screens and sequences than are shown in this document. The screens show here must be considered only as examples.

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 featuring a keyboard and a display.

Keyboard The keyboard has eight basic function keys and four fast-access keys. These twelve keys perform the following functions:

Basic function keys	**Function**
Ⓒ	CANCEL – Escapes to the previous screen, cancels incorrect entries (unless you have already confirmed the entry using the ENTER key), or confirms alarm messages.
⊙	UP ARROW– Moves the cursor to the previous line.
⊙	DOWN ARROW– Moves the cursor to the next line.
⊙	RIGHT ARROW– Moves the cursor to the next field of the current line.
⊙	LEFT ARROW– 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 change 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 non-critical alarms.

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

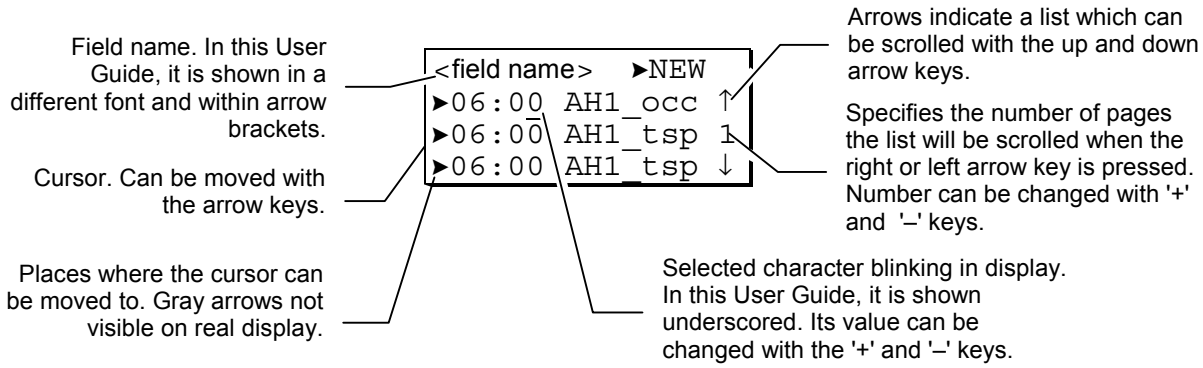
IMPORTANT
After performing a RESET all data in the RAM and the configuration codes are lost.

DOWN ARROW + 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 four 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:



NOTE: If the string "*****" should appear, this means that currently no value is available.

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 you 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
```

Using the arrow keys, move the cursor to the password field. 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 right arrow key (the underscored character will be 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
```

Using the arrow keys, move the cursor to 'NEXT'. 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
```

Using the arrow keys, move the cursor to the 'CHANGE' field. Confirm with ENTER. The following screen appears.

```
Change Password
Level 2:►2222
Level 3:►3333
          ►BACK
```

Using the arrow keys, move the cursor to the password to be changed. Confirm with ENTER.

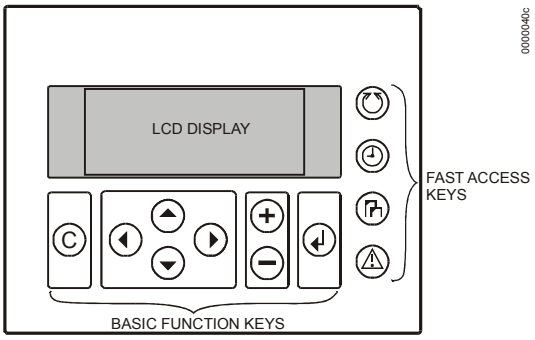
Change the password using the '+' or '–' keys and by moving to the next digit using the right arrow key. Confirm with ENTER.

```
Change Password
Level 2:►1775
Level 3:►3333
          ►NEXT
```

After you have finished changing the passwords, use the arrow keys to move the cursor to 'BACK'. 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 no key has been pressed for a long time.

The screen displays the name of the first time program, the application status, 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.

The application status is shown in the upper right corner of the display and will appear as one of the following:

Init Initializing—The application tasks are started, and data points and memory are being initialized.
Run Running—All relevant application tasks are running.
Shut Shutdown—All relevant application tasks are halted. The application stops step by step.
Stop Stopped—Some or all relevant application tasks are stopped. The application does not run.

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

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

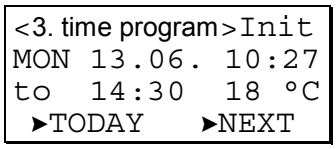
Using the arrow keys, move the cursor to
- 'NEXT' to display the next time program.
- 'TODAY' to make temporary changes to the current time program.

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>Init
MON 13.06. 10:27
to  12:00  ON
 ►TODAY    ►NEXT
```

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER. The following screen appears.



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.

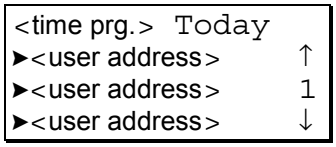
Important

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

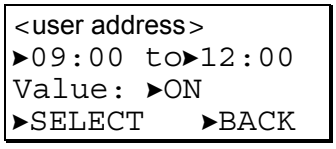
If 'TODAY' has been selected, the screen will now display the password entry screen.

NOTE: Changing a switching time point requires a 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. Using the arrow keys, move the cursor to 'NEXT' and confirm with ENTER. The following screen appears.



Using the arrow keys, move the cursor to the user address to be changed temporarily. Confirm with ENTER. The following screen appears.



Change 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 you have finished changing the values, use the arrow keys to move the cursor to
- 'SELECT' to return to the selection list screen.
- 'BACK' to return to the default screen.

Confirm with ENTER.

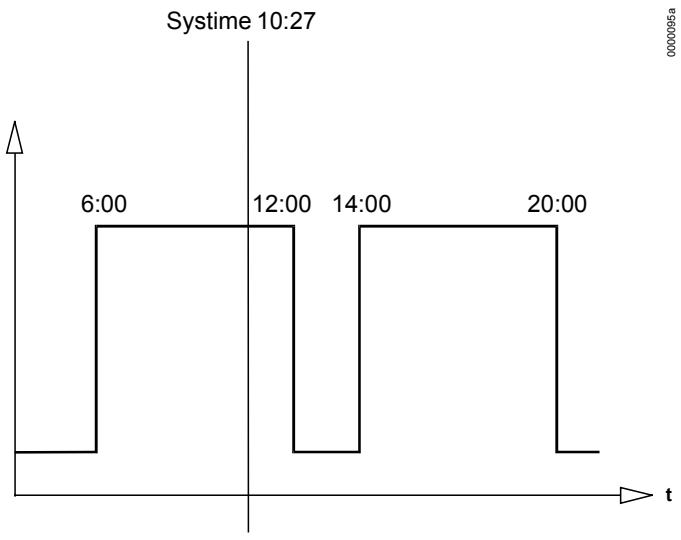
Example A normal day cycle is shown below.

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

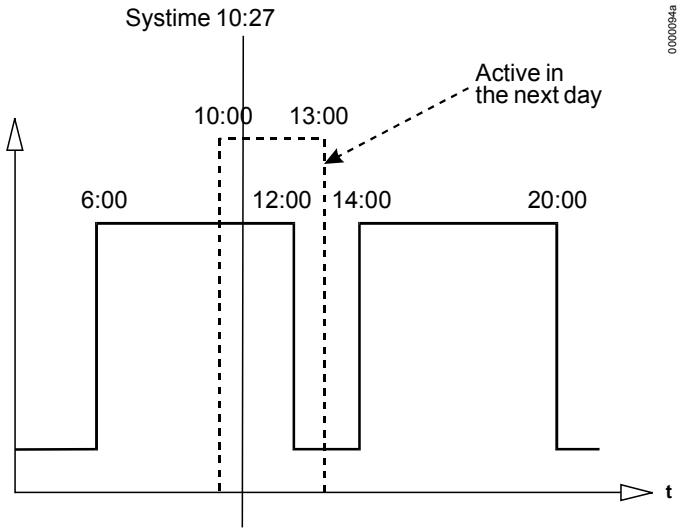


For this day cycle, a 'TODAY' entry from 10:00 to 13:00 with the status ON has been made. The time of the next change has changed temporarily from 12:00 to 13:00. See the following figure.

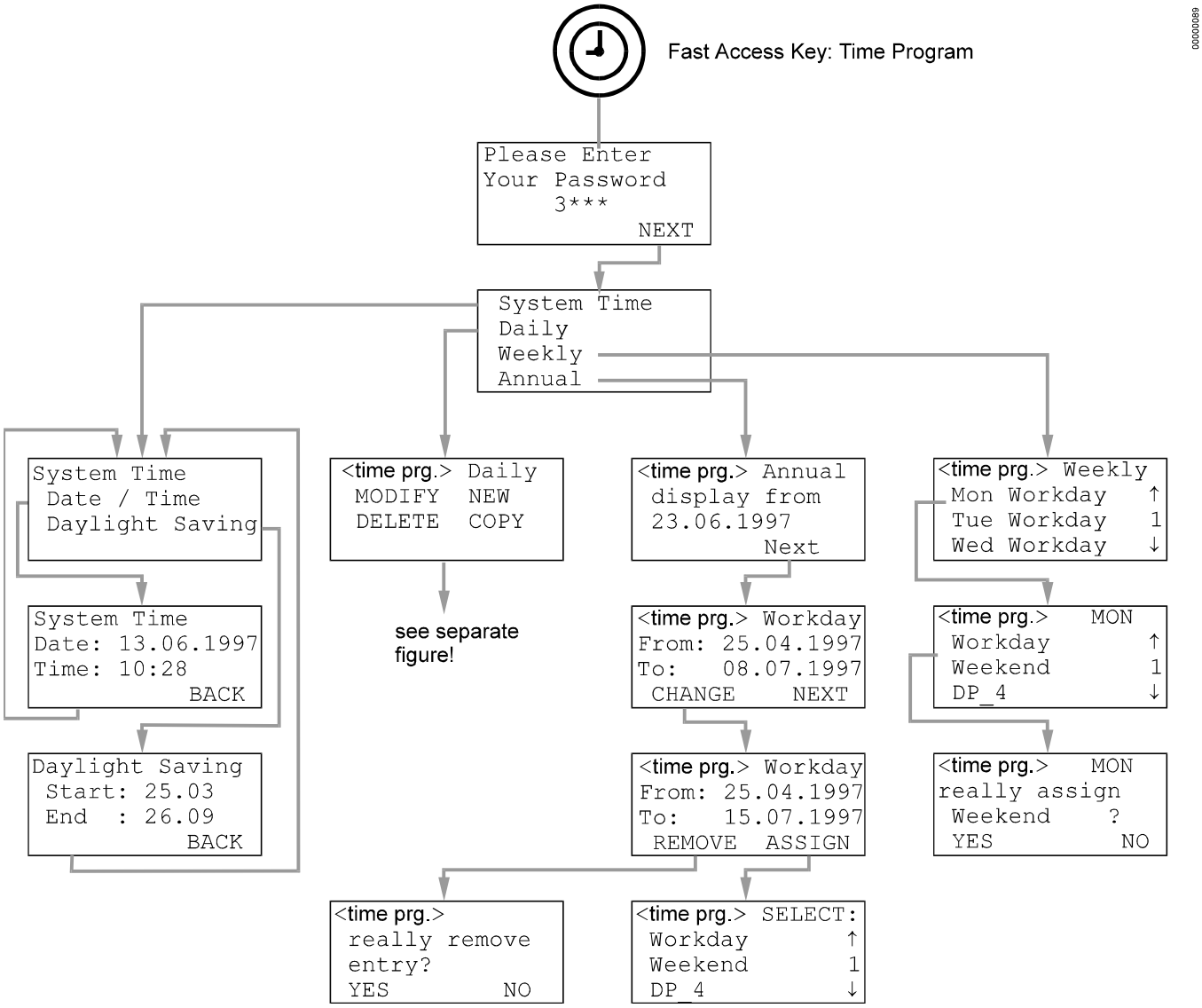
Screen displays:

```
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



TIME PROGRAM KEY



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

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

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

Enter the password. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

System Time

The 'System Time' procedure is used to make changes to the time and the date which 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
```

Using the arrow keys, move the cursor to the 'System Time' field. Confirm with ENTER.

Setting Date and Time

```
System Time
►Date / Time
►Daylight Saving
```

Using the arrow keys, move the cursor to the 'Date / Time' field. Confirm with ENTER. The following screen appears.

```
System Time
Date:►13.06.1997
Time:►10:28
          ►BACK
```

Using the arrow keys, move the cursor to the 'Date' or 'Time' field. 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. Use the arrow keys to move the cursor to '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 dates on which daylight savings time starts and ends in a given year must be changed every year.

```
System Time
►Date / Time
►Daylight Saving
```

Using the arrow keys, move the cursor to the 'Daylight Saving' field. Confirm with ENTER. The following screen appears.

```
Daylight Saving
Start:►25.03
End  :►26.09
          ►BACK
```

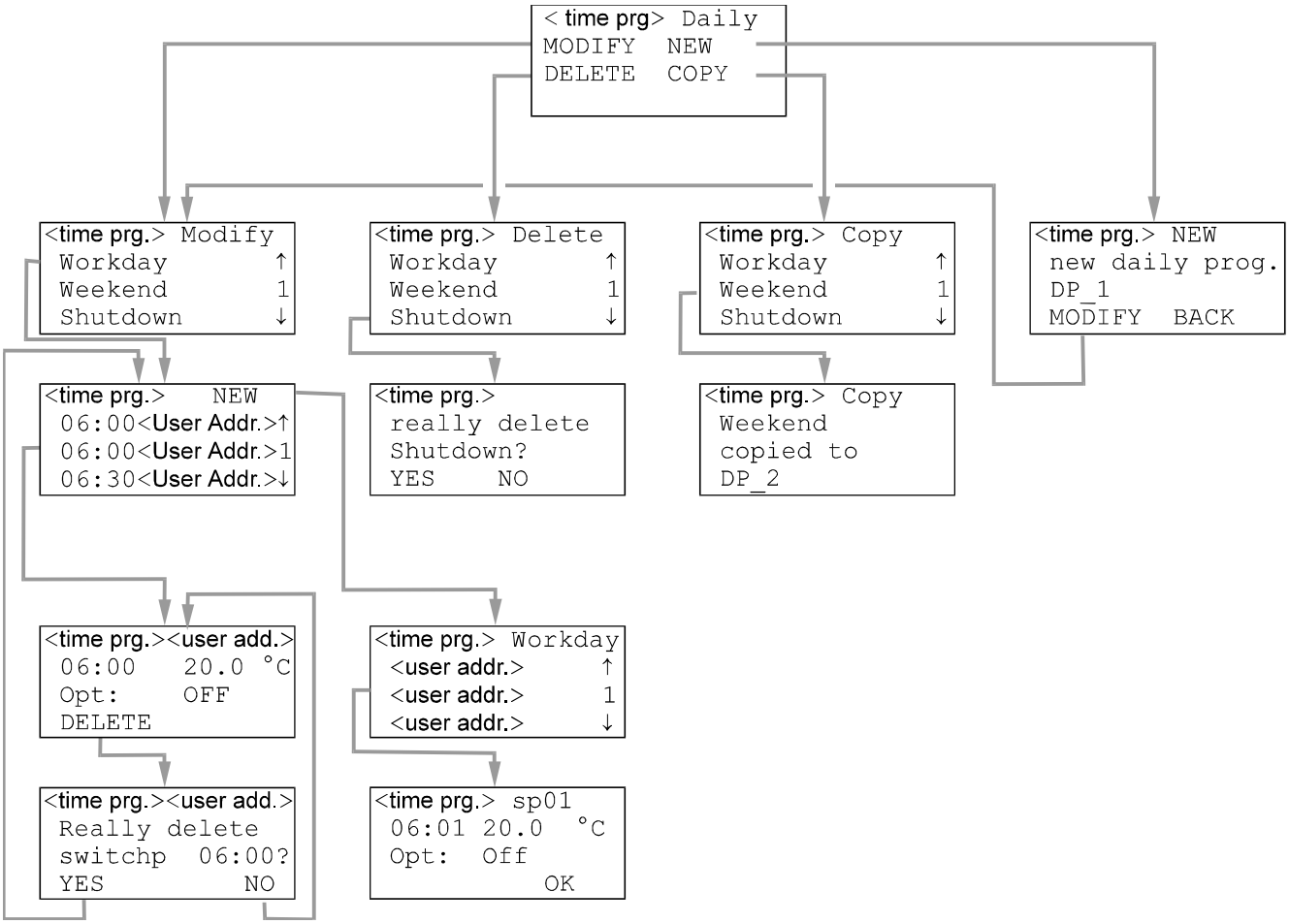
Enter the dates on which daylight savings time starts and ends for the current year using the '+' or '–' keys. Move from field to field using the arrow keys. Confirm with ENTER.

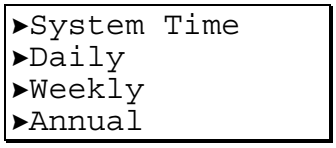
NOTE: Press the CANCEL key to abort the operation or to cancel an incorrect entry before ENTER has been pressed. The value previously displayed will be restored.

```
Daylight Saving
Start:►27.03
End  :►26.09
          ►BACK
```

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER to return to the start screen of the time program.

Daily Program





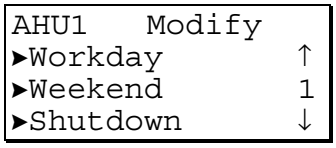
Using the arrow keys, move the cursor to the 'Daily' field in the main screen. Confirm with ENTER.

NOTE: The 'Daily' program contains daily time programs.

Using the arrow keys, move the cursor to
- '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.

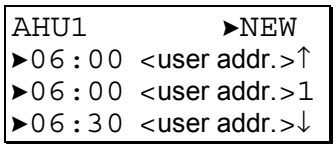
Confirm with ENTER.

Modifying a Daily Time Program

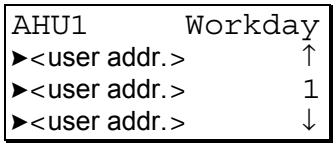


Using the arrow keys, move the cursor to the daily time program you wish to modify and confirm with ENTER.

Creating a New Switching Point



Using the arrow keys, move the cursor to 'NEW'. Confirm with ENTER.

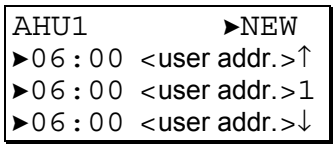


Using the arrow keys, move the cursor to the user address to which the new switching point should belong.

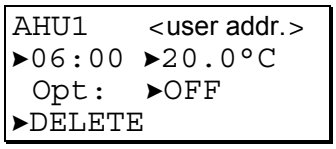
Modify the time, the value or the optimize flag of the new switching point using the '+' or '–' keys (The optimize flag can be set to ON only if the user address is suitable for optimization).

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

Using the arrow keys, move the cursor to 'OK' and confirm with ENTER to add the new switching point to the current time program.

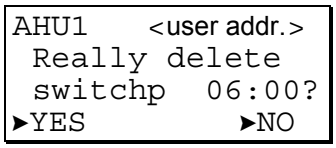


Using the arrow keys, move the cursor to the switching point you wish to modify or delete. Confirm with ENTER.



Modify the time, the value, or the optimize flag of the switching point. Using the arrow keys, move the cursor to the field you wish to change. Confirm with ENTER.

Use the '+' and '–' keys to change the field content. If you wish to delete the switching point, use the arrow keys to move the cursor to the 'DELETE' field and confirm with ENTER.



If you are sure that you wish to delete the switching point, use the arrow keys to move the cursor to 'YES' and confirm with ENTER. If you do not wish to delete the switching point, use the arrow keys to move the cursor to 'NO' and confirm with ENTER. In the latter case, you will escape to the previous screen without deleting the switching point.

Creating a New Daily Time Program

Using the arrow keys, move the cursor to 'YES'. Confirm with ENTER.

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

Using the arrow keys, move the cursor to
- 'MODIFY' to go to the 'Modify daily time program' sequence.
- 'BACK' to return to the 'Time program' menu screen.

Confirm with ENTER.

Deleting a Daily Time Program

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

Using the arrow keys, move the cursor to the daily time program to be deleted. Confirm with ENTER.

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

Using the arrow keys, move the cursor to '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       ↓
```

Using the arrow keys, move the cursor to the daily time program to be copied. Confirm with ENTER.

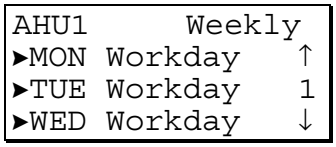
```
AHU1
 Weekend
 copied to
 DP_2     ►BACK
```

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

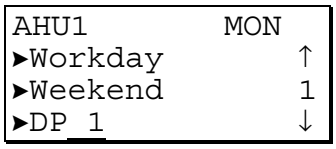
Weekly Program

```
►System Time
►Daily
►Weekly
►Annual
```

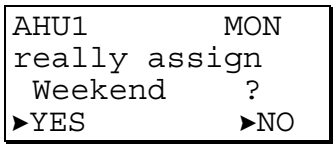
Using the arrow keys, move the cursor to the 'Weekly' field. Confirm with ENTER.



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, use the arrow keys to move the cursor to this day. Confirm with ENTER.

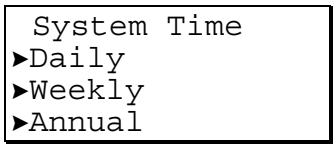


Using the arrow keys, move the cursor to the daily time program to be assigned to the day of the week displayed in the upper right corner. Confirm with ENTER.

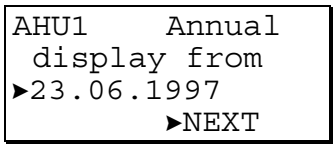


Using the arrow keys, move the cursor to 'YES' to assign the daily time program to the weekday or 'NO' to escape from this screen without any changes. Confirm with ENTER.

Annual Program



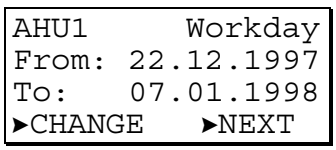
Using the arrow keys, move the cursor to the 'Annual' field. Confirm with ENTER.



The annual program will be displayed from the date shown in this screen. The default date is the current date. Using the arrow keys, 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 right arrow key. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.



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
```

Regardless of which screen appears, use the arrow keys to move the cursor to
- 'NEXT' to display the next period a daily time program is assigned to.
- 'CHANGE' 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. Using the arrow keys, move the cursor to the date fields you wish to change. Confirm with ENTER. Use the '+' and '–' keys to change the start and end dates.

Using the arrow keys, move the cursor to
- '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.

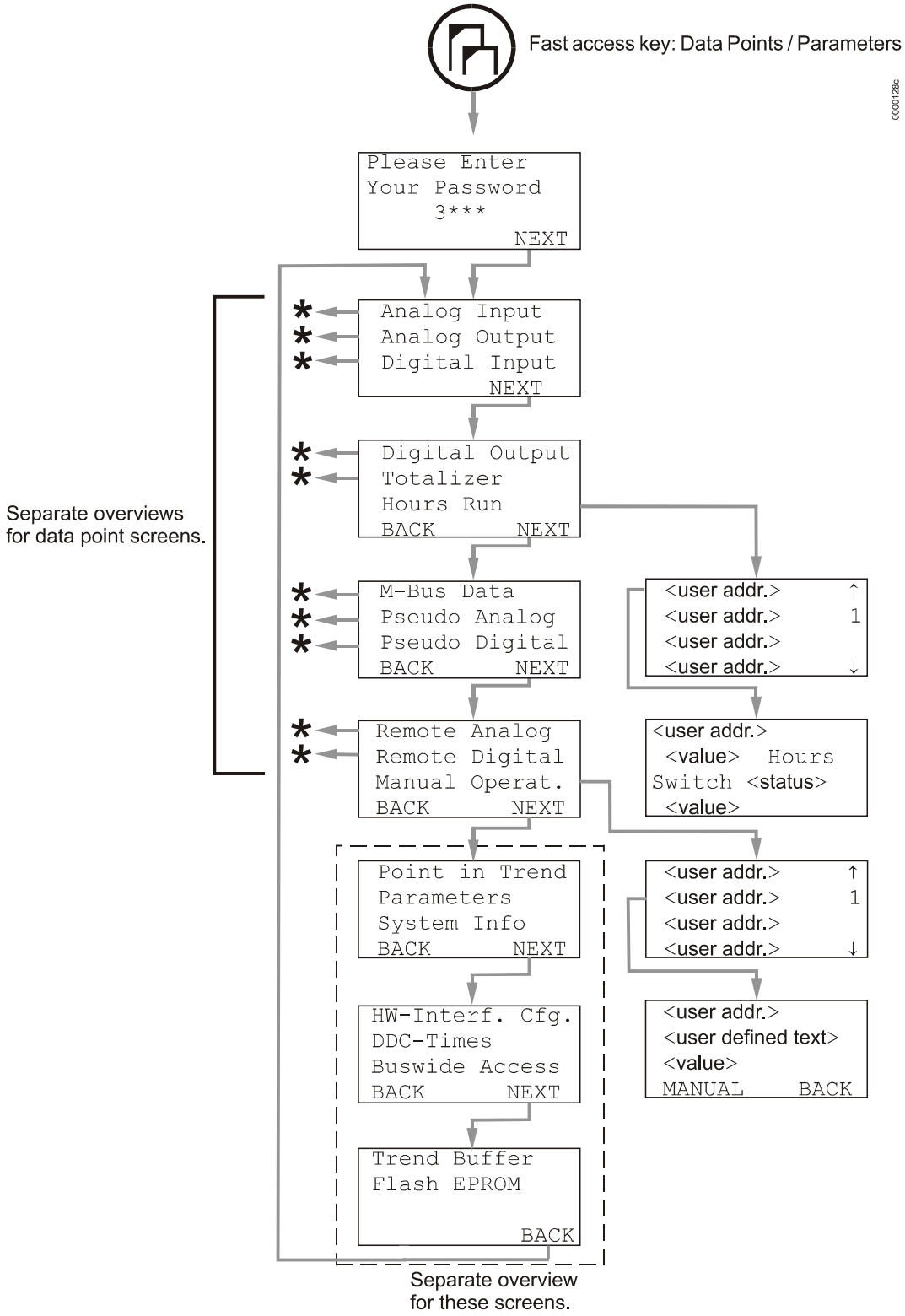
```
AHU1      SELECT:
►Workday        ↑
►Weekend        1
►DP_4           ↓
```

If 'ASSIGN' has been selected, this screen will appear. Using the arrow keys, move the cursor to a daily time program to assign it to the previously entered period of time. Confirm with ENTER.

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

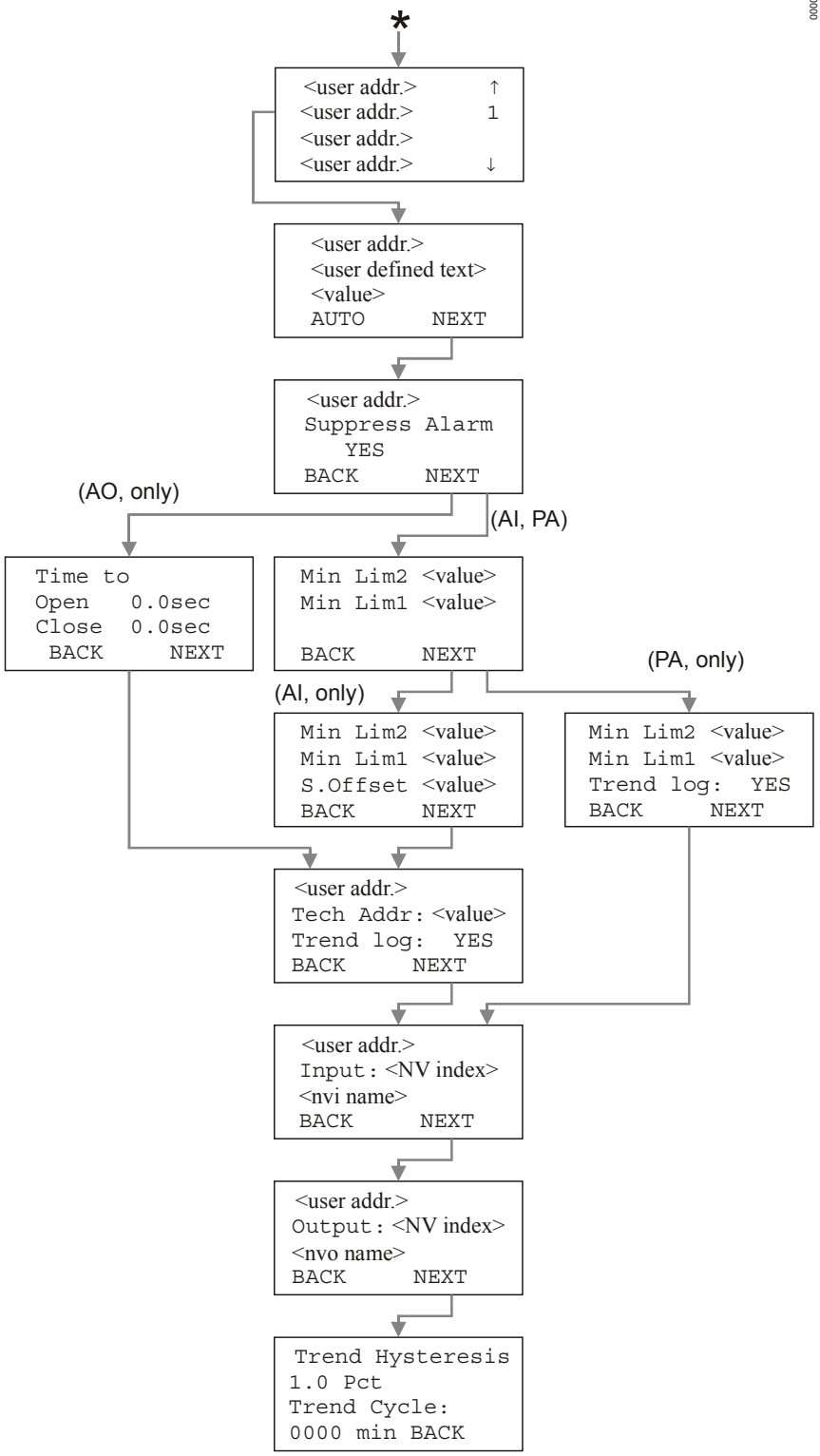
If 'REMOVE' has been selected, this screen will appear. Using the arrow keys, move the cursor to 'YES' to remove the daily time program from the period. Confirm with ENTER.

DATA POINTS / PARAMETERS KEY



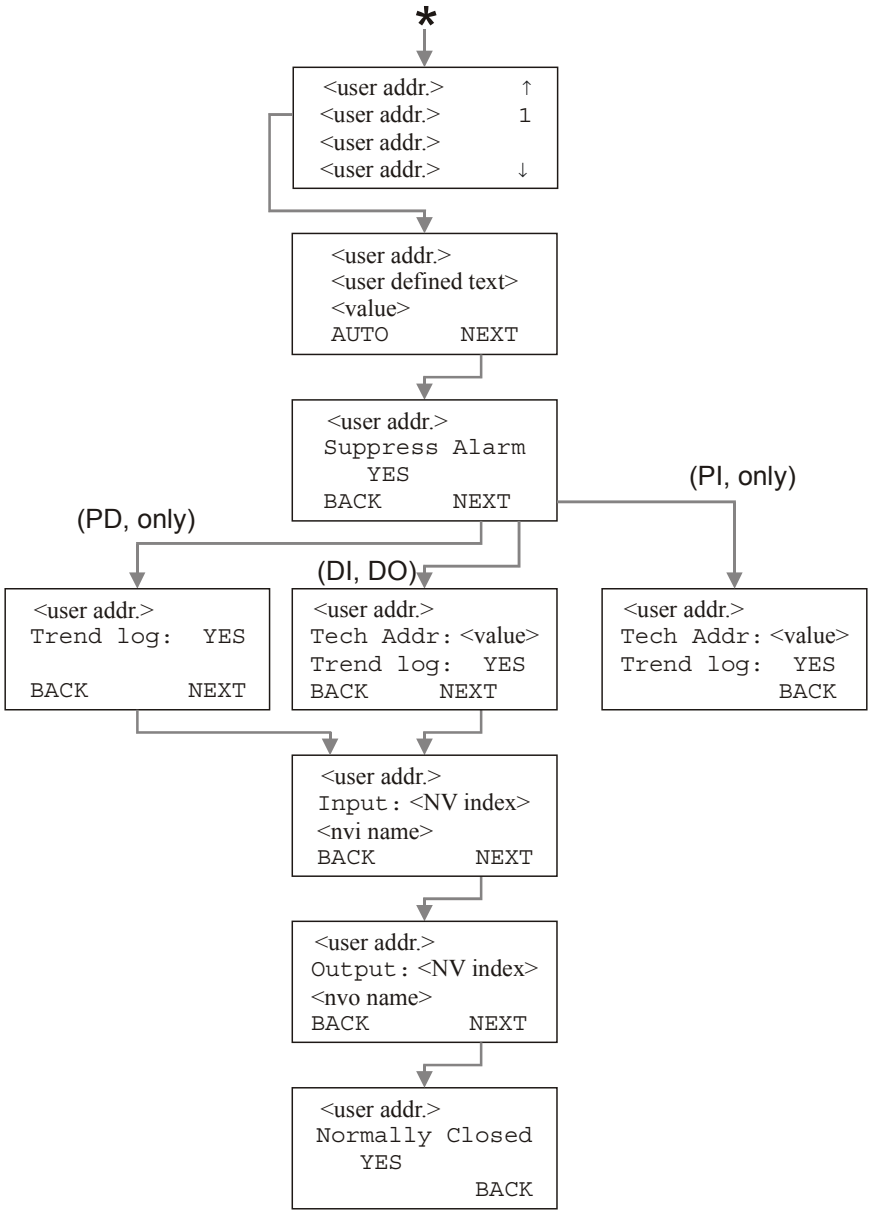
Sequence of screens for analog input (AI), analog output (AO), and pseudo analog (PA) data points

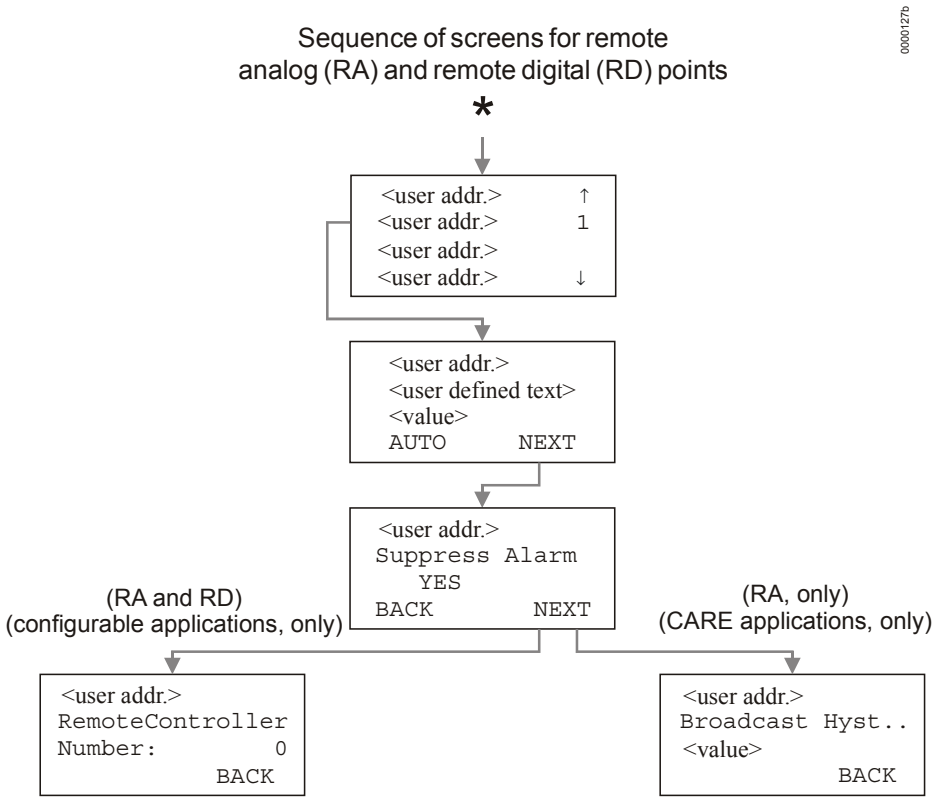
00001256



Sequence of screens for digital input (DI), digital output (DO), pseudo digital (PD), and totalizer points (PI)

0000126b





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.

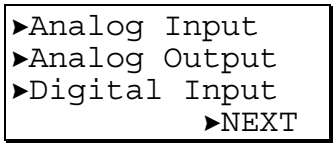
The password entry screen will be displayed.

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

Enter the password. Confirm with ENTER.

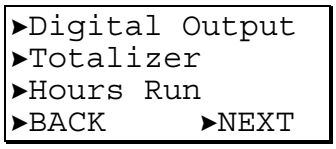
Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

Data Points



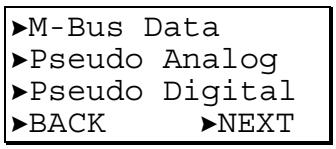
Using the arrow keys, move the cursor to
- 'Analog Input', 'Analog Output', or 'Digital Input' to go into the 'Data points' sequence.
- 'NEXT' to proceed to the next screen.

Confirm with ENTER.



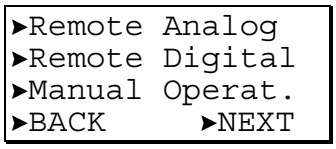
Using the arrow keys, move the cursor to
- 'Digital Output' or 'Totalizer' to go into the 'Data points' sequence.
- 'Hours run' to go to the 'Hours run' screen.
- 'NEXT' to proceed to the next screen.
- 'BACK' to return to the previous screen.

Confirm with ENTER.



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

Confirm with ENTER.



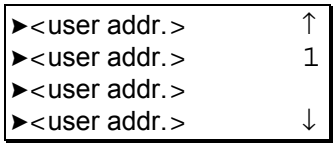
Using the arrow keys, move the cursor to
- 'Remote Analog' or 'Remote Digital' to go into the 'Remote points' sequence.
- 'Manual Operat.' to go to the 'Manual operation' screen.
- 'NEXT' to proceed to the next screen.

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.



Using the arrow keys, move the cursor to the appropriate data point. 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 changed. Using the arrow keys, move the cursor to the appropriate field. 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.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

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

The attribute "Suppress Alarm" of the user address can be changed from 'YES' to 'NO' and vice versa. Using the arrow keys, move the cursor to the appropriate field. Confirm with ENTER.

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

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

```
Min lim2><value>
Min lim1><value>

►BACK       ►NEXT
```

This and the next screen will be shown only for analog input and pseudo analog data points. Change the value of the attributes "Min Alarm Limit" and "Max Alarm Limit" using the '+' and '–' keys. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

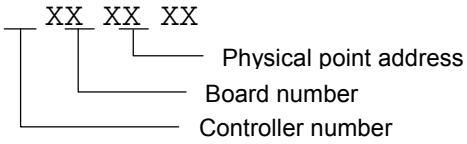
```
Max lim1><value>
Max lim2><value>
S.Offset><value>
►BACK       ►NEXT
```

Change the value of the attributes "Min Alarm Limit", "Max Alarm Limit", and "Sensor Offset" using the '+' and '–' keys. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. 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 six digits in pairs of two and stands for the following data:



For an explanation of Board Number, see section "Data Point Wiring Check". To enable trend logging for this data point, use the arrow keys to move the cursor to the appropriate field. Confirm with ENTER. Change the value/status using the '+' or '-' keys. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER. Except in the case of Remote Analog points, the following screen appears:

```
<user addr.>
Input: <NV index>
<nvi name>
►BACK      ►NEXT
```

This screen shows the mapping of data points to network variables transmitted on the LONWORKS bus. If no network variables have been mapped, the index and NV name fields will be blank. This screen appears also for outputs, with NV index for the output and nvo name displayed.

In the case of Remote Analog points only, the following screen appears:

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

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

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

NOTE: If "Trend Cycle" is set to anything other than 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".

Digital Points

This screen is visible only for digital points and shows the relationship between the physical state of a digital point and its logical status.

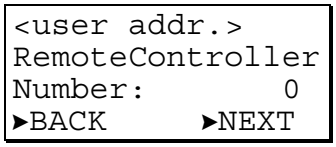
```
<user addr.>
Normally Closed
  ►YES
►BACK      ►NEXT
```

The attribute "Normally Open/Normally Closed" of the user address can be changed from 'YES' to 'NO' and vice versa. Using the arrow keys, move the cursor to the appropriate field. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

Remote Points

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

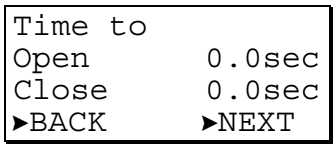


Change the controller number using the '+' and '–' keys. Confirm with ENTER. In the case of points which the controller receives from other controllers on the C-Bus, the controller number of the source of the point must be entered. For points that the controller is the source of, the default value of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

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

Analog Outputs

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



Change the values using the '+' and '–' keys. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.

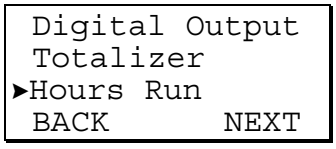
CARE Applications

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:

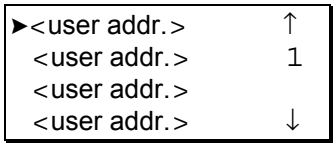
This screen allows you to change the attribute "Broadcast Hysteresis". This attribute is available for remote analog data points in CARE applications (not applicable to configurable applications). "Broadcast Hysteresis" prevents new values from being broadcast to other controllers unless the data point value changes (positively or negatively) at least by the amount specified in this screen. Using the arrow keys, move the cursor to the appropriate field. Confirm with ENTER.

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

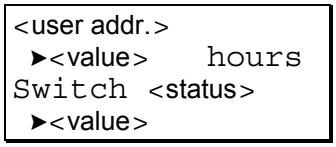
Hours Run



Using the arrow keys, move the cursor to the 'Hours Run' field. Confirm with ENTER.

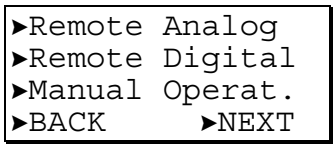


Using the arrow keys, move the cursor to the appropriate user address. Confirm with ENTER.

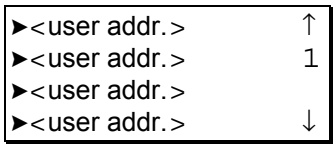


The screen displays the total running hours logged together with the number of times the device has been switched on. If you have accessed the 'Data points / parameters' procedure with the level-3 password, the values can be changed using the '+' and '–' keys.

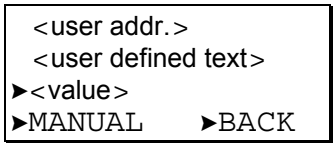
Manual Operation



Using the arrow keys, move the cursor to the 'Manual Operat.' field. Confirm with ENTER.



Using the arrow keys, move the cursor to the appropriate user address. Confirm with ENTER.

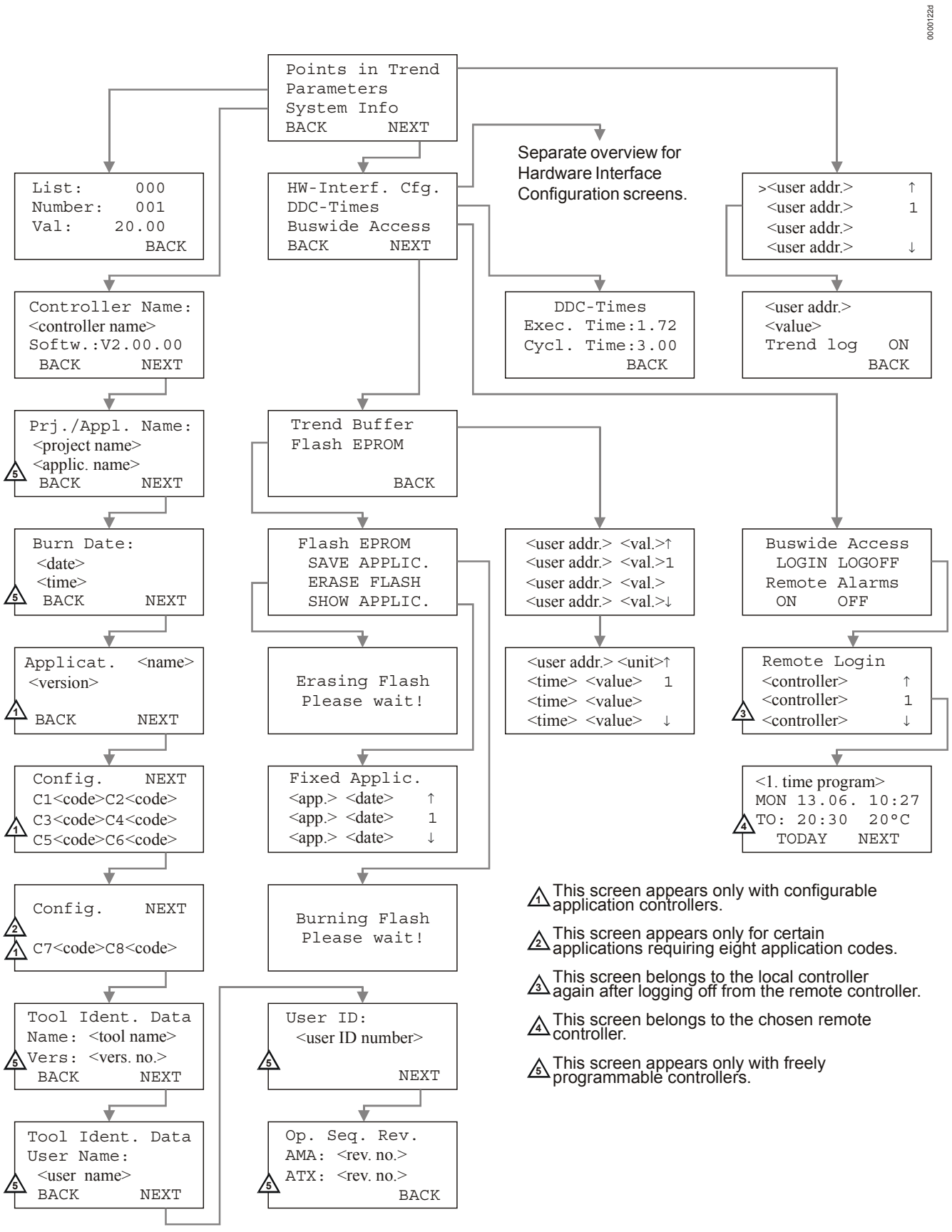


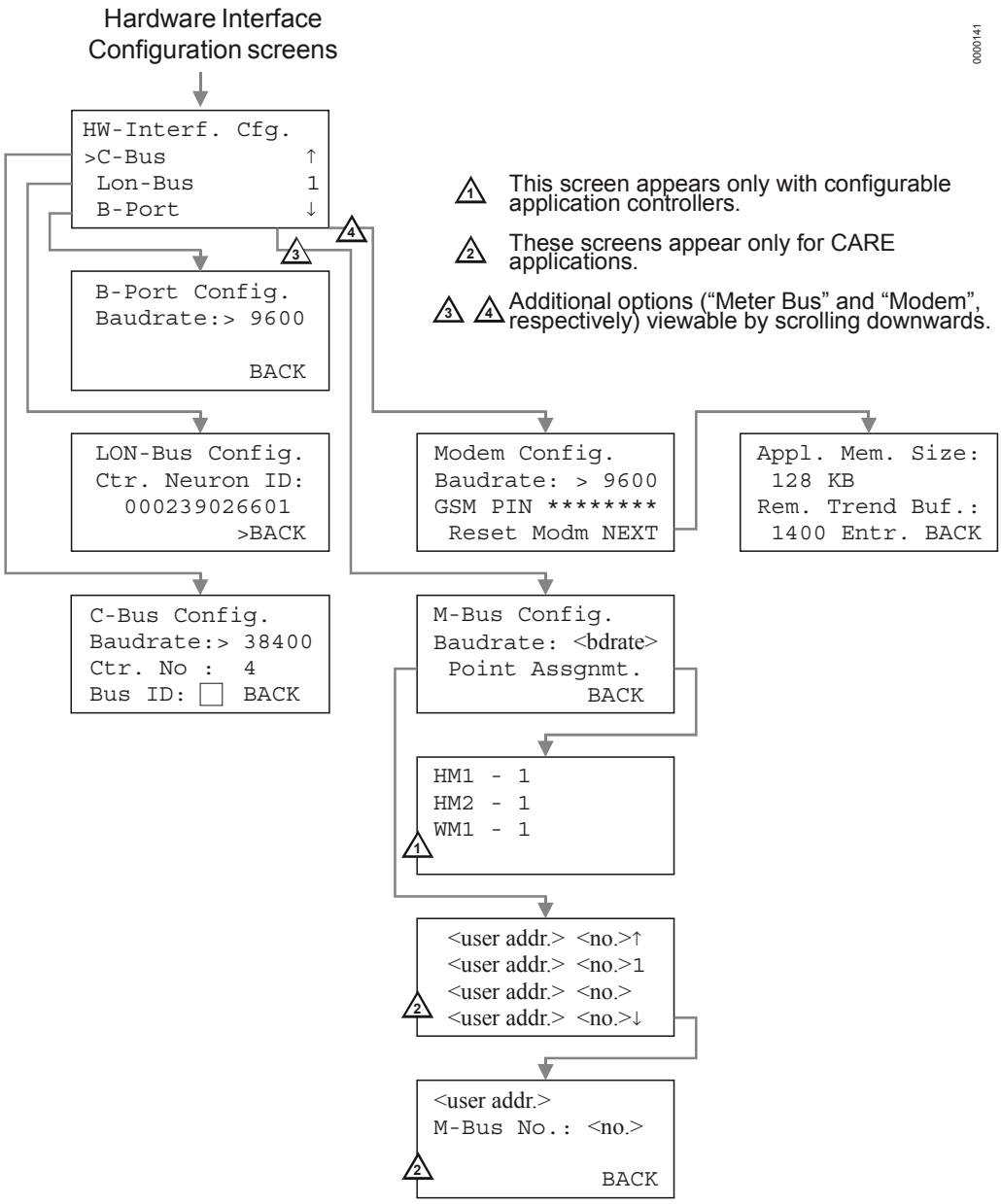
In this screen, the operating mode field can be changed from 'MANUAL' to 'AUTO' (and vice versa) and the setpoint value/status can be changed. Using the arrow keys, move the cursor to the appropriate field. Confirm with ENTER.

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


00001224
Points in Trend
Parameters
System Info
BACK NEXT
Separate overview for Hardware Interface Configuration screens.
List: 000
Number: 001
Val: 20.00
BACK
HW-Interf. Cfg.
DDC-Times
Buswide Access
BACK NEXT
><user addr.> ↑
<user addr> 1
<user addr>
<user addr> ↓
Controller Name:
<controller name>
Softw.:V2.00.00
BACK NEXT
DDC-Times
Exec. Time:1.72
Cycl. Time:3.00
BACK
<user addr.>
<value>
Trend log ON
BACK
Prj./Appl. Name:
<project name>
<applic. name>
BACK NEXT
Trend Buffer
Flash EPROM
BACK
Burn Date:
<date>
<time>
BACK NEXT
Flash EPROM
SAVE APPLIC.
ERASE FLASH
SHOW APPLIC.
<user addr.> <val.>↑
<user addr.> <val.>1
<user addr.> <val.>
<user addr.> <val.>↓
Buswide Access
LOGIN LOGOFF
Remote Alarms
ON OFF
Applicat. <name>
<version>
BACK NEXT
Erasing Flash
Please wait!
<user addr.> <unit>↑
<time> <value> 1
<time> <value>
<time> <value> ↓
Remote Login
<controller> ↑
<controller> 1
<controller> ↓
Config. NEXT
C1<code>C2<code>
C3<code>C4<code>
C5<code>C6<code>
Fixed Applic.
<app.> <date> ↑
<app.> <date> 1
<app.> <date> ↓
<1. time program>
MON 13.06. 10:27
TO: 20:30 20°C
TODAY NEXT
Config. NEXT
C7<code>C8<code>
Burning Flash
Please wait!
Tool Ident. Data
Name: <tool name>
Vers: <vers. no.>
BACK NEXT
User ID:
<user ID number>
NEXT
Tool Ident. Data
User Name:
<user name>
BACK NEXT
Op. Seq. Rev.
AMA: <rev. no.>
ATX: <rev. no.>
BACK
1 This screen appears only with configurable application controllers.
2 This screen appears only for certain applications requiring eight application codes.
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 appears only with freely programmable controllers.




```
►Points in Trend
►Parameters
►System Info
►BACK     ►NEXT
```

Using the arrow keys, move the cursor to 'NEXT' to display the second screen of the 'Parameters' menu. Confirm with ENTER.

```
►HW-Interf. Cfg.
►DDC-Times
►Buswide Access
►BACK     ►NEXT
```

Using the arrow keys, move the cursor to 'NEXT' to display the third screen of the 'Parameters' menu. Confirm with ENTER.

```
►Trend Buffer
►Flash EPROM  ►

              ►BACK
```

Points in Trend

```
►Points in Trend
►Parameters
►System Info
►BACK     ►NEXT
```

Using the arrow keys, move the cursor to the 'Points in Trend' field. Confirm with ENTER.

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

Using the arrow keys, move the cursor to the appropriate data point. Confirm with ENTER.

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

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

Change the value/status using the '+' or '–' keys. Confirm with ENTER. Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER to return to the list under 'Points in Trend'.

Parameter List

```
►Points in Trend
►Parameters
►System Info
►BACK     ►NEXT
```

To view or change control parameters of devices connected to the controller, use the arrow keys to move the cursor to the 'Parameters' field in the first screen of the parameters sequence. Confirm with ENTER. Changing parameters requires a level-3 password.

```
List      000
NO.       001
Val.►20.00    °C
          ►BACK
```

To change the parameter value, use the arrow keys to move the cursor to the value field. Confirm with ENTER.

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

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER to return to the parameter list screen.

System Information

```
►Points in Trend
►Parameters
►System Info
►BACK     ►NEXT
```

Using the arrow keys, move the cursor to the 'System Info' field. Confirm with ENTER.

```
Controller Name:
<controller name>
Softw.:V 2.00.00
►BACK     ►NEXT
```

Using the arrow keys, move the cursor to the controller name field. Confirm with ENTER.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER to proceed to the next screen (which depends upon the type of application module used).

```
Prj./Appl. Name
<project name>
<application name>
►BACK     ►NEXT
```

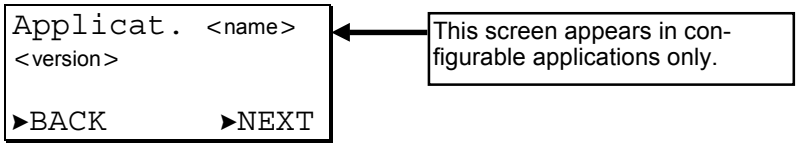
This screen does not appear in configurable applications.

This screen displays the name of the current project and application. 'NEXT' is preselected to move to the burn date screen. Confirm with ENTER.

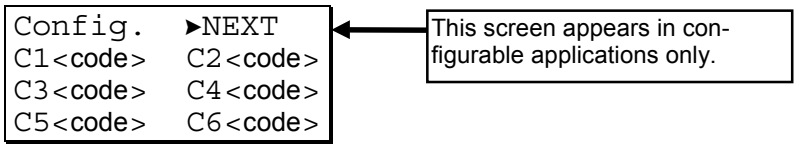
```
Burn Date:
<burn date>
<burn time>
►BACK     ►NEXT
```

This screen does not appear in configurable applications.

This screen displays the burn date and time of the current project and application. 'NEXT' is preselected to move to the application version screen. Confirm with ENTER.



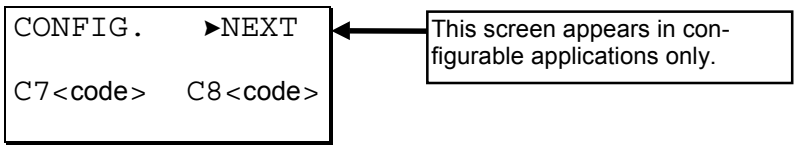
This screen displays the name of the current application and its version number. 'NEXT' is preselected to move to the configuration codes screen. Confirm with ENTER.



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

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

Second screen:

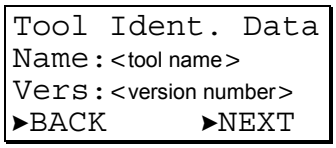


IMPORTANT

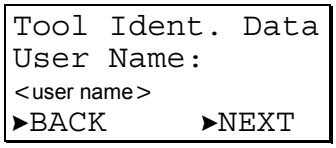
After performing a RESET, all data in RAM and the configuration codes are lost.

To change the codes perform a RESET (press the down arrow and the minus key simultaneously). The codes can then be changed In the start-up sequence.

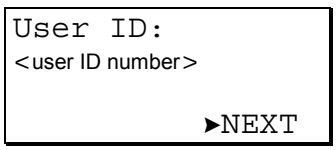
'NEXT' is preselected to move to the Tool Information screen. Confirm with ENTER.



This screen displays the name and version number of the tool used to create the current application. 'NEXT' is preselected to move to the User Name screen. Confirm with ENTER.



This screen displays the user name for the tool used to create the current application. 'NEXT' is preselected to move to the 'User ID' screen. Confirm with ENTER.



This screen displays the user license number for the tool used to create the current application. 'NEXT' is preselected to move to the Operating Sequence Revision screen. Confirm with ENTER.

```
Op. Seq. Rev.
AMA: <revision number>
ATX: <revision number>
                ►BACK
```

This screen displays the revision numbers for the AMA and ATX files used to create the operating sequence. Asterisks will appear before and after the AMA revision number if the AMA or ADS files have been changed before the compilation. Asterisks will also appear before and after the ATX revision number if the ATX file has been changed before compilation. 'BACK' is preselected to move to the previous screen. Confirm with ENTER.

Hardware Interface Configuration

The following sequence will depend upon the specific hardware interfaces featured on the controller. The list box will contain a combination of the following options: B-port (serial port), C-bus, LON-bus, M-Bus, or Modem (RS232 serial port).

```
HW-Interf. Cfg.
 B-Port          ↑
 C-Bus           1
 LON-Bus         ↓
```

B-Port Using the arrow keys, move the cursor to the 'B-Port' field. Confirm with ENTER.

```
B-Port Config.
Baudrate<bdrate>

                ►BACK
```

Using the arrow keys, move the cursor to the value field. Confirm with ENTER.

NOTE: Changing the baud rates requires a level-2 password.

Change the values using the '+' or '–' keys. Confirm with ENTER. Using the arrow keys, move the cursor to 'BACK' and confirm with ENTER.

C-Bus Using the arrow keys, move the cursor to the 'C-Bus' field. Confirm with ENTER.

```
C-Bus Config.
Baudrate:<bdrate>
Contr.No:►1
Bus ID    □ ►BACK
```

NOTE: If you set the bus ID to a non-zero value, the C-bus baudrate will be immediately disabled (i.e. it is then no longer editable). See also section "LONWORKS Bus" below.

Using the arrow keys, move the cursor to the value field. Confirm with ENTER.

NOTE: Changing the baud rates requires a level-2 password.

NOTE: To provide compatibility with the PC-based XI584 operator and service software, this C-Bus screen may appear even for controllers with

application modules that do not have a C-Bus connection. This screen will not appear for controllers using the XD50E application module, which does not allow downloads.

Change the values using the '+' or '–' keys. Confirm with ENTER. To change the controller number, repeat previous steps. Using the arrow keys, move the cursor to 'BACK' and confirm with ENTER.

LONWORKS Bus Using the arrow keys, move the cursor to the 'LON-Bus' field. Confirm with ENTER.

```
LON-Bus Config.
Contr. Neuron ID
<neuron ID no.>
              ►BACK
```

This screen displays the unique ID number of the Neuron processor. Using the arrow keys, move the cursor to 'BACK' and confirm with ENTER.

Modem Using the arrow keys, move the cursor to the 'Modem' field. Confirm with ENTER.

```
Modem Config.
Baudrate:<bdrate>
GSM PIN:********
Reset Modm ►NEXT
```

This screen appears only when modem communication is enabled.

Using the arrow keys, move the cursor to the value field. Confirm with ENTER.

NOTE: Changing the baud rates requires a level-2 password.

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

To enter the password for GSM communication, use the arrow keys to move to the 'GSM PIN' field. Press ENTER to enter the field. Press the '+' or '–' keys to increment/decrement the digit. Press ENTER to confirm the digit. Use the 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 baud rate must be set to 9600 for GSM communication to work.

Using the arrow keys, move the cursor to 'Reset Modem' to reset the modem to its 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.

Using the arrow keys, move the cursor to 'NEXT' and confirm with ENTER.

```
Appl. Mem. Size
128 KB
Rem. Trend Buf.
104 Entr.  ►BACK
```

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 be changed

only 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 enables 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 using 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.

Using the arrow keys, move the cursor to ‘BACK’ and confirm with ENTER.

M-Bus Using the arrow keys, move the cursor to the 'M-Bus' field. Confirm with ENTER.

```
M-Bus Config.
Baudrate:<bdrate>
 Point Assgnmt.
          ►BACK
```

Using the arrow keys, move the cursor to the value field. Confirm with ENTER.

NOTE: Changing the baud rates requires a level-2 password.

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

Using the arrow keys, move the cursor to the ‘Point Assgnmt.’ field. Confirm with ENTER.

For configurable applications the following screen will appear:

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

This screen appears only with configurable applications.

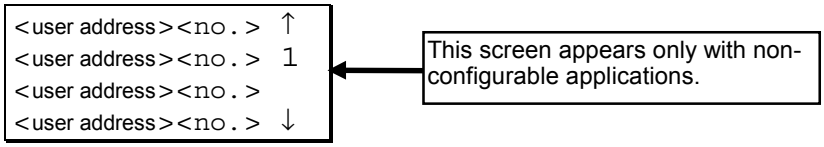
This screen displays the bus numbers for up to three heat meters and/or up to two water meters on the Meter Bus (up to max. 3 meters in total). A value of 0 or lower

(-1 default) means no device is connected. Using the arrow keys, move the cursor to the appropriate bus number field. Confirm with ENTER.

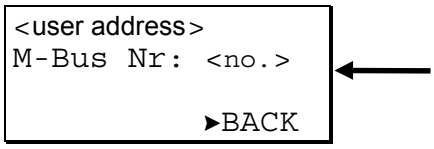
Use the '+' or '–' keys to change the value. Confirm with ENTER.

To return to the previous screen, use the arrow keys to move the cursor to CANCEL. Confirm with ENTER.

In the case of CARE applications, the following screen appears following the 'M-Bus Config.' screen:



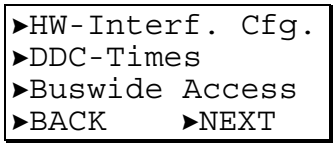
This screen displays the user address and Meter Bus device number assigned to it. To change the Meter Bus device number, use the arrow keys to move the cursor to the appropriate user address and confirm with ENTER. The following screen appears:



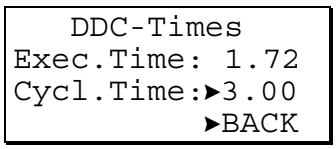
Using the arrow keys, move the cursor to the value field to set the device number of the Meter Bus. Confirm with ENTER.

Use the '+' or '–' keys to change the value. Confirm with ENTER. Using the arrow keys, move the cursor to 'BACK' and confirm with ENTER.

DDC Program Cycle Times



Using the arrow keys, move the cursor to the 'DDC-Times' field. Confirm with ENTER.

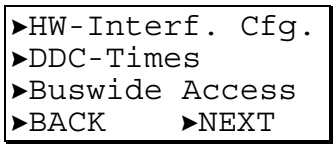


This screen displays the RACL cycle time and execution time in seconds. The cycle time can be changed to optimize the system performance. Changing the cycle time requires a level-3 password. Using the arrow keys, move the cursor to the 'Cycl. time' field. Confirm with ENTER.

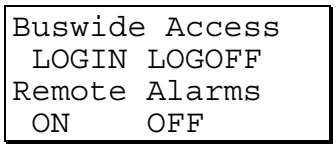
Use the '+' or '–' keys to change the value. Confirm with ENTER.

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER.

Buswide Access



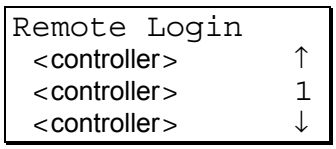
The 'Buswide Access' function uses the MMI of this controller to view or to make changes to other EXCEL 50 controllers without MMI which are connected to the same bus. Using the arrow keys, move the cursor to the 'Buswide Access' field. Confirm with ENTER.



Using the arrow keys, move the cursor to
- '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 appear:



Using the arrow keys, move the cursor to the controller you want to log into. Confirm with ENTER.

IMPORTANT:

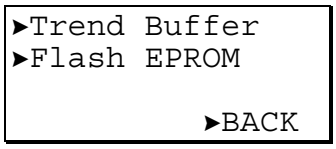
From now on, all visible screens are the screens of the remote controller. The first screen of the remote controller will be the start screen. You can now access all screens of the remote controller. Use the 'Buswide Access' function via the 'Data Points / Parameters' fast-access key to return to the 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 XI581AH/582AH operator interface results in only part of the information from that controller being displayed on the Excel 50 screen (due to its smaller screen size).

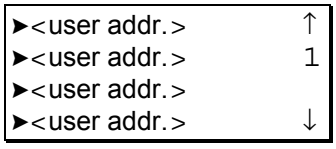
If 'LOGOFF' has been selected, you will be logged off from the remote controller and return to the controller list screen of the LOGIN function on your own controller.

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.

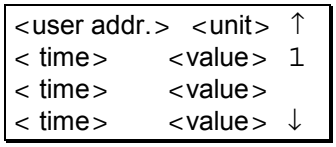
Trend Buffer



Using the arrow keys, move the cursor to the 'Trend Buffer' field. Confirm with ENTER.



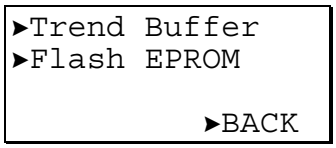
Using the arrow keys, move the cursor to the appropriate data point. Confirm with ENTER.



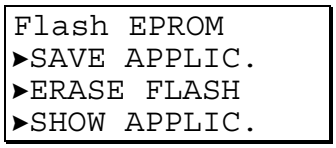
In this screen, the trend buffer entries for the data point can be viewed using the normal methods for moving through a list box.

Return to the list under 'Points in Trend' with CANCEL.

Flash EPROM



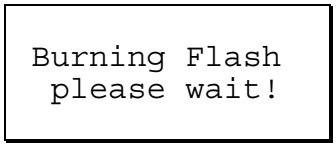
Using the arrow keys, move the cursor to the 'Flash EPROM' field. Confirm with ENTER.



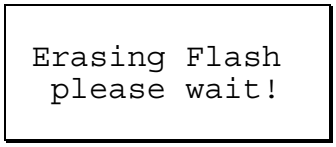
Using the arrow keys, move the cursor to
- 'SAVE APPLIC.' to burn all data of the current application data into the Flash EPROM.
- 'ERASE FLASH' to erase all data from the Flash EPROM.
- 'SHOW APPLIC.' to display fixed applications with burn date.

Confirm with ENTER.

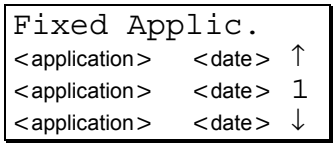
If 'SAVE APPLIC.' has been selected, this screen will appear:



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

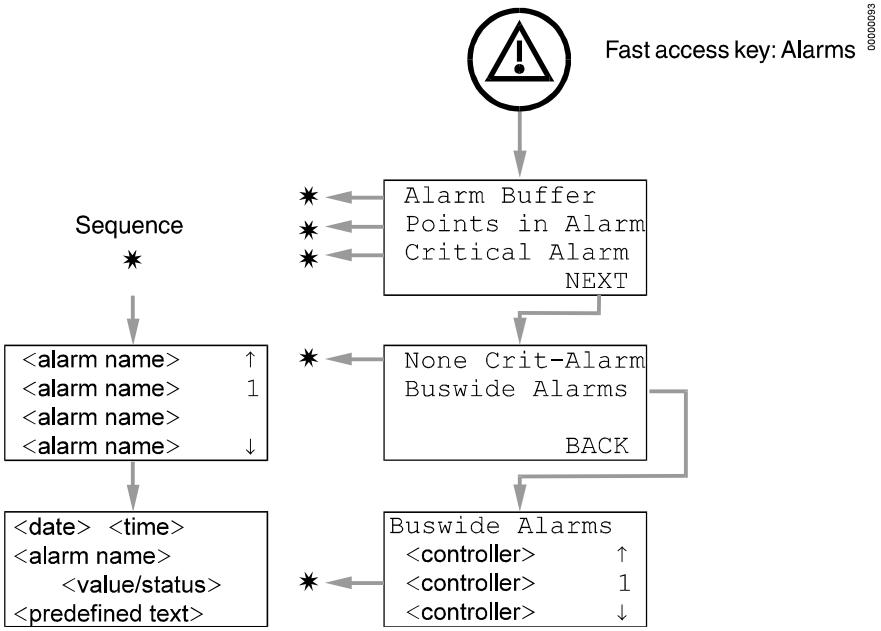


If 'SHOW APPLIC.' has been selected, this screen will appear:



Using the arrow keys, move the cursor to the appropriate application and view the burn date.

ALARMS KEY



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

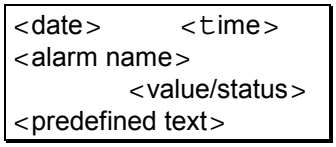
```
►NonCrit.Alarm
►Buswide Alarms

          ►BACK
```

Using the arrow keys, move the cursor to 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>
►<alarm name>
►<alarm name>
```

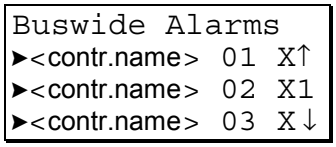
The screen displays all the points currently in alarm in the list box. To access more information about a specific alarm, use the arrow keys to move the cursor to the appropriate alarm name. Confirm with ENTER.



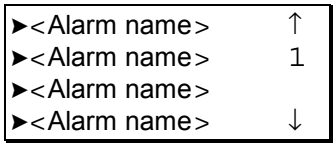
Alarm information (comprising the date, time, alarm name, value/status and alarm reason) is displayed. Press CANCEL to return to the previous screen.

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 appear:

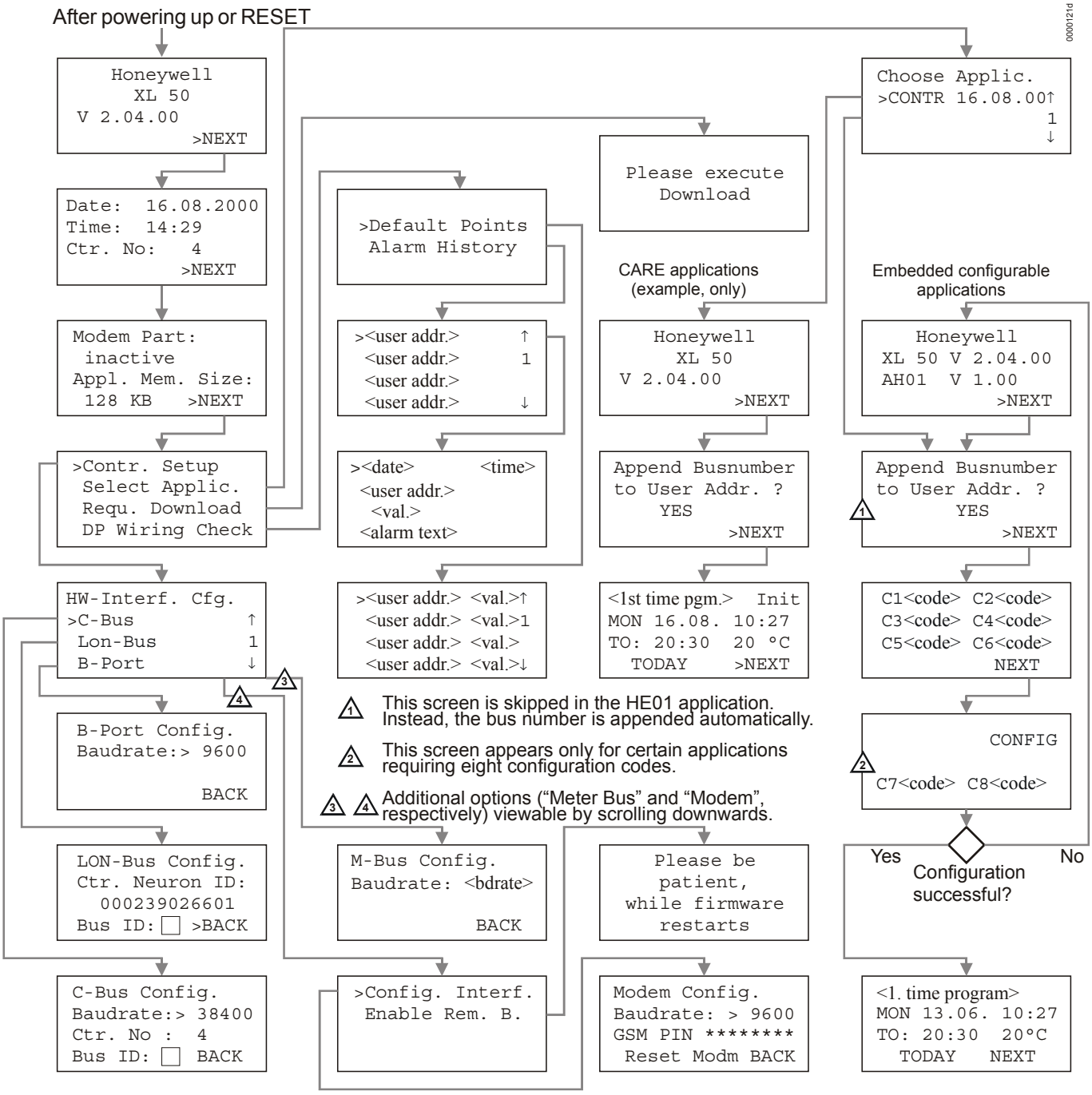


This screen shows a list of all controllers connected to the bus. Using the arrow keys, move the cursor to the appropriate controller. Confirm with ENTER.



A list box with all alarms in the alarm buffer of the specified controller will be shown. Using the arrow keys, move to the appropriate alarm. Confirm with ENTER.

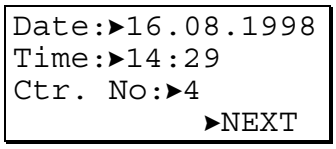
START-UP SEQUENCE



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 part of the operating system and therefore always displayed in English.

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. The cursor is positioned at 'NEXT' by default. Confirm with ENTER.



Using the arrow keys, move the cursor to
— the 'Date' field to enter the current date.
— the 'Time' field to enter the current time.
— the ‘Ctr. No’ field to set the controller number.

If 'Date' is selected:
Set the date using the '+' or '–' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Using the arrow keys, move the cursor to '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.

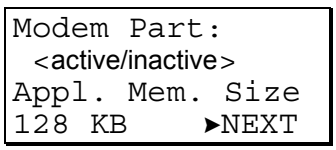
If 'Time' is selected:
Set the time using the '+' or '–' keys. Use the arrow keys to move from field to field. Confirm with ENTER. Use the CANCEL key to return to the previous screen.

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.

If 'Ctr. No.' is selected:
Set the controller number using the '+' or '–' keys. 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.

Using the arrow keys, move the cursor to 'NEXT'. Confirm with ENTER.



This screen provides information about whether modem communication is enabled and about application memory size. Enabling modem communication and changing the value for application memory are done in a later screen. The cursor is positioned at 'NEXT' by default. Confirm with ENTER.

```
►Contr. Setup
►Select Applic.
►Requ. Download
►DP Wiring Check
```

Using the arrow keys, move the cursor to
— 'Contr. Setup' to configure the controller-specific hardware interfaces.
— 'Select Applic.' to choose the application manually.
— 'Requ. Download' to download an application from either the PC-based XI584 operator and service software or the XBS Central A.
— 'DP Wiring Check' to set up the test mode with default user addresses.
Confirm with ENTER.

Controller Setup

If 'Contr. Setup.' has been selected, the following screen will appear:

```
HW-Interf. Cfg.
►B-Port          ↑
 C-Bus           1
 LON-Bus         ↓
```

The contents of this list box will depend upon the controller's exact hardware configuration. The listed interfaces to be configured will be from among the following:

- B-Port
- C-Bus.
- LON-Bus
- Meter Bus
- Modem

B-Port Using the arrow keys, move the cursor to 'B-Port' and confirm with ENTER. The following screen appears:

```
B-Port Config.
Baudrate: ►9600

          ►BACK
```

Using the arrow keys, move the cursor to the value field. Use the '+' and '–' keys to change the field. Confirm with ENTER.

NOTE: Live CARE is now capable of autodetecting the controller baud rate setting, then of switching it temporarily to 38.4 Kbaud. When Live CARE is disconnected, the controller will switch back to the previous baud rate setting automatically within 15 seconds.

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER.

C-Bus Using the arrow keys, move the cursor to the 'C-Bus' field and confirm with ENTER. The following screen appears:

```
C-Bus Config.
Baudrate: ►38400
Contr.No: ►<no.>
          ►BACK
```

NOTE: If you set the bus ID to a non-zero value, the C-bus baudrate will be immediately disabled (i.e. it is then no longer editable). See also section "LONWORKS Bus" below.

Using the arrow keys, move to the appropriate value field.
If 'Baudrate' is selected:
Change the baud rate using the '+' and '–' keys. Confirm with ENTER.

If 'Contr. No.' is selected:
Change the controller number using the '+' or '–' keys. 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.

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER.

LONWORKS Bus

Using the arrow keys, move the cursor to 'LON-Bus' and confirm with ENTER. The following screen appears:

```
LON-Bus Config.
Contr. Neuron ID
<neuron ID number>
Bus ID     ►BACK
```

This screen displays the unique identification number for the Neuron processor in the controller.

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER.

IMPORTANT

The bus ID is a non-unique number (i.e. different Excel 500 controllers can have the same bus ID in common) between 0 and 99 (inclusive) which the user can edit after a reset during the controller's start-up sequence or by changing the configuration property nciXL500BusSetup. The factory default is "0".

Meter Bus

Using the arrow keys, move the cursor to the 'M-Bus' field and confirm with ENTER. The following screen appears:

```
M-Bus Config.
Baudrate: ►9600

►BACK
```

Using the arrow keys, move the cursor to the value field. Use the '+' and '–' keys to change the field. Confirm with ENTER.

Using the arrow keys, move the cursor to 'BACK'. Confirm with ENTER.

Modem Communication

Using the arrow keys, move the cursor to 'Modem' and confirm with ENTER. If modem communication has not yet been enabled, the following screen appears:

```
Config. Interf.
Enable Rem. B.
```

This screen allows the user to enable modem communication. If you select 'Enable Rem. B.', you will be asked to wait while the firmware is restarted. If modem communication is already enabled, the following screen will appear:

```
Config. Interf.

Config. Rem. B.
Disable Rem. B.
```

If 'Config. Interf.' Is selected, the following screen appears:

```
Modem Config.
Baudrate:  9600
GSM PIN ********
Reset Modm ►NEXT
```

Using the arrow keys, move the cursor to
— ‘Baudrate’ 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 section "Remote Communications" of the Excel 50 Controller Installation Instructions, EN1B-101, for more information.

Using the arrow keys, move the cursor to the appropriate value fields. Use the '+' and '–' keys to change 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 'Config. Rem. B.' to go to the next screen:

```
Appl. Mem. Size
128 KB  RESTART
Rem. Trend Buf.:
104 Entr. ►BACK
```

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 and the size of the RAM module. See "Adjustable Remote Trend Buffer (V2.03.x)" for details of the calculation.

If a new value for Appl. Mem. Size has not been entered, the cursor is positioned at 'BACK' by default. Confirm with ENTER and return to the previous 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 use the arrow keys to move the cursor to '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).

When this screen appears again, the cursor is positioned at 'BACK' by default. The new application memory size and the new number of trend samples calculated by the controller are shown. Confirm with ENTER and return to the previous screen.

Select Application

```
►Contr. Setup
►Select Applic.
►Requ. Download
►DP Wiring Check
```

If 'Select Applic.' has been selected from the screen shown above, the following screen will appear listing applications and their burn dates:

```
Select Applic.
►AH01              ↑
 <applic.> <date.> 1
 <applic.> <date.> ↓
```

Using the arrow keys, move the cursor to the desired application. 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 appear. 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, this screen will appear:

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

Using the arrow keys, 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.

Using the arrow keys, move the cursor to 'NEXT'. 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 six configuration code numbers. Applications with eight 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.

Using the arrow keys, move the cursor to the appropriate code and change its value using the '+' and '–' keys.

Using the arrow 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 appear:

```
<1. time program>Init
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 appear again. Change the screens by using the arrow keys to move the cursor to 'NEXT' and confirming with ENTER until you have returned to the configuration screen. 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>Init
MON 13.06. 10:27
TO: 20:30  20°C
 ►TODAY    ►NEXT
```

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

Request Download

```
►Contr. Setup
►Select Applic.
►Requ. Download
►DP Wiring Check
```

If 'Requ. Download' has been selected from the screen shown above, the following screen appears.

```
Please execute
Download
```

Follow the instructions for a download given in the XI584 User Guide or Lizard User Guide (if downloading via B-Port) or the User Guide for the Building Central (if by C-Bus).

NOTE: After download of an application, the controller checks the CARE application's User ID via its checksum and will not start the application if it is invalid. An alarm 'Invalid User ID' will be issued.

Data Point Wiring Check

```
►Contr. Setup
►Select Applic.
►Requ. Download
►DP Wiring Check
```

If 'DP Wiring Check' has been selected from the screen shown above, 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, the following screen appears:

```
►Default Points
►Alarm History
```

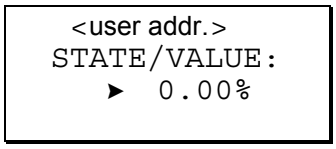
Using the arrow keys, move the cursor to
— 'Default Points to display I/O points for checking values and manually setting outputs for testing.
— 'Alarm History' to display current alarms. This feature allows the system to be checked out by a single person opening and closing inputs and then later reading the alarm buffer to see if they were detected by the controller.
Confirm with ENTER.

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

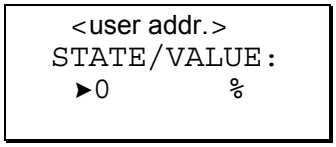
```
►<user addr.> <val>↑
►<user addr.> <val>1
►<user addr.> <val>
►<user addr.> <val>↓
```

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

For analog points the following screen is displayed.



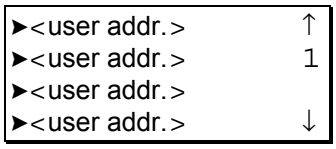
Confirm the displayed value with ENTER, or change the value using the '+' or '–' keys. Confirm with ENTER. In the case of digital points, the following screen is displayed.



Confirm the displayed value with ENTER, or change the value/state using the '+' or '–' keys. Confirm with ENTER.

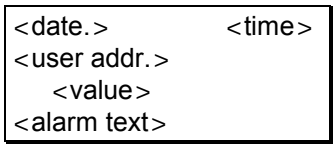
Press CANCEL to return to the previous screen (list of user addresses).

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):



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, use the arrow keys to move the cursor to the default user address from the list box. Confirm with ENTER. The following screen will appear:



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

controller's start-up sequence. 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.

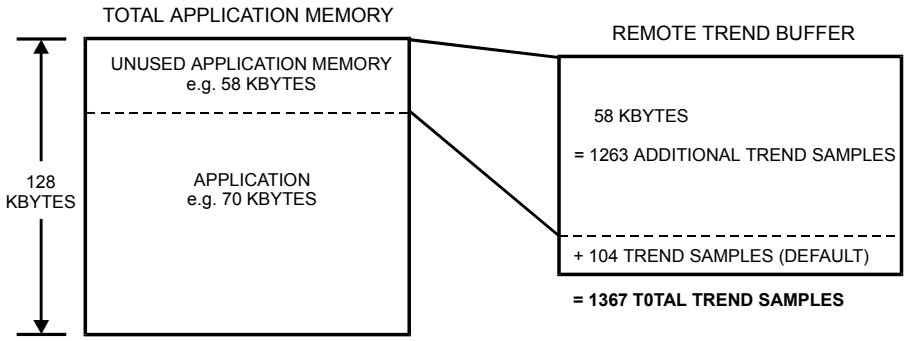


Figure 1. Adjustable remote trend buffer example.

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: 38 Kbyte	104 per central, PLUS “N” for central A

For the XD52-FC application module:
N = (128 Kbytes - appl. size(in Kbytes) + 384 Kbytes) * 1024 bytes / 47 bytes

For all other application modules equipped with Flash EPROMS:
N = (128 Kbytes - appl. size (in Kbytes)) * 1024 bytes / 47 bytes

Hence, the maximum value of N is 10,327 trend samples for the XD52-FC application module and 1,960 trend samples for all others containing Flash memory. This means that for all Flash memory-equipped modules with a minimum application size of 38 Kbytes, there will be 2,064 (1,960 + 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 such data as setpoints, switching time points, and operating hours.

The Operator access levels 2 and 3 are password-protected. Authorized personnel can change 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 section "Modifying a 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 current date, time and daylight savings 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 changed via operator access levels 2 and 3.

System Time

The system time includes the current date and time and the start and end date of the daylight savings 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:

Workday	06:00	AH1_occ
	08:00	AH1_tsp
	09:00	AH1_psp

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:

Monday	Workday
Tuesday	Workday
Wednesday	Workday
Thursday	Workday
Friday	Workday
Saturday	Weekend
Sunday	Weekend

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

Monday	Workday
Tuesday	Workday
Wednesday	Workday
Thursday	DP_2
Friday	Workday
Saturday	Weekend
Sunday	Weekend

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.

From 01.01.1997 to 15.07.1997	normal weekly program
From 15.07.1997 to 30.08.1997	'Weekend' daily time program
From 30.08.1997 to 31.12.1997	normal weekly program

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 change value/status depends on the operator access level.

The attribute "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 is equipped 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 handle a maximum of 128 pseudo points of each type.

Remote points

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

NV mapping (V2.04.00)

Beginning with V2.04.00 firmware implemented with an XD-52FC controller, there may be physical points mapped to LONWORKS network variables (NVs) and not assigned to any I/O board. In this case, the technical address number will be 0. Mapped NVs can be displayed like point attributes, including the nvi or nvo name and NV index (range: 0 t0 4095, with 0xFFFF indicating the data point is not mapped.

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	Digital Outputs	Pseudo Digital Points
User Address	User Address	User Address
Descriptor	Descriptor	Descriptor
Technical Address	Technical Address	Operating Mode
Operating Mode	Operating Mode	Value
Value	Value	Manual Value
Manual Value	Manual Value	Suppress Alarm
Engineering Unit	Alarm Reporting	Hours Run
Suppress Alarm	Hours Run	Trend Log
Min Limit 2	Suppress Alarm	Nv(i/o) Index
Min Limit 1	Trend Log	Nv(i/o) Name
Max Limit 1	Normally Open/Normally Closed	
Max Limit 2	Nv(i/o) Index	
Sensor Offset	Nv(i/o) Name	
Trend Log		
Trend Hysteresis		
Trend Cycle		
Nv(i/o) Index		
Nv(i/o) Name		
Analog Outputs	Totalizer Inputs	Pseudo Totalizer Inputs
User Address	User Address	User Address
Descriptor	Descriptor	Descriptor
Technical Address	Technical Address	Operating Mode
Operating Mode	Operating Mode	Value
Value	Value	Manual Value
Manual Value	Manual Value	Suppress Alarm
Engineering Unit	Suppress Alarm	Trend Log
Suppress Alarm	Trend Log	
Time to Open/Time to Close		
Trend Log		
Trend Hysteresis		
Trend Cycle		
Nv(i/o) Index		
Nv(i/o) Name		
Digital Inputs	Pseudo Analog Points	Remote Data Points
User Address	User Address	User Address
Descriptor	Descriptor	Technical Address
Technical Address	Operating Mode	Value
Operating Mode	Value	Engineering Unit
Value	Manual Value	Trend Log
Manual Value	Engineering Unit	
Alarm Reporting	Suppress Alarm	
Hours Run	Min Limit 2	
Suppress Alarm	Min Limit 1	
Trend Log	Max Limit 1	
Normally Open/Normally Closed	Max Limit 2	
Nv(i/o) Index	Trend Log	
Nv(i/o) Name	Trend Hysteresis	
	Trend Cycle	
	Nv(i/o) Index	
	Nv(i/o) Name	

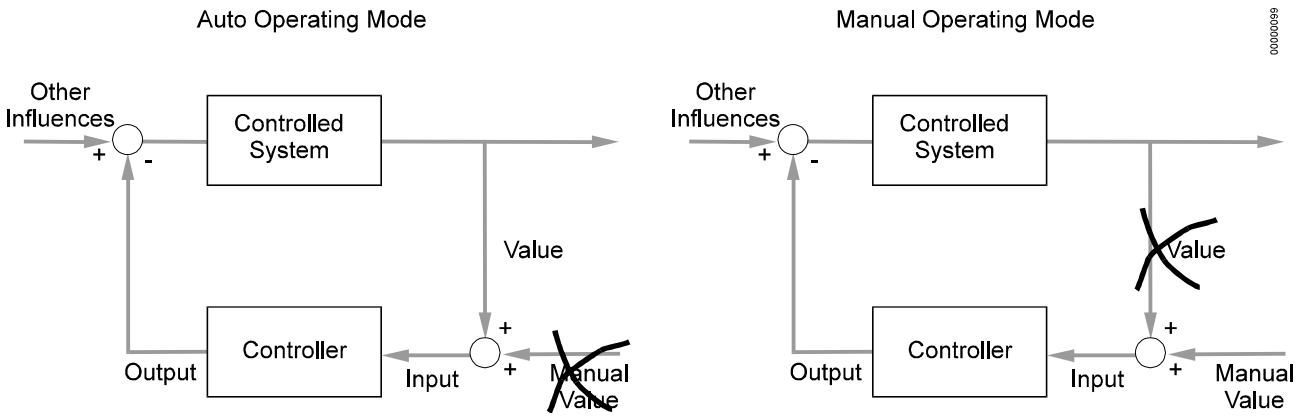
Operating Mode

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 attribute "Operating Mode" 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 attribute "Operating Mode" is set to 'Auto'), the value or the current status being processed by the application program can be found in the attribute "Value". The attribute "Value" for an analog input is, for example, the current room temperature of 21 °C / 70 °F. The attribute "Value" 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 attribute "Operating Mode" is set to 'Manual'), the preset manual values can be found in the attribute "Manual Value".

Example:

In the example shown, the attribute "Operating Mode" is set to 'Manual', i.e. the data specified manually is written into the attribute "Manual Value", processed in the controller, and passed on to an output. The user can, of course, recall the measured value coming from the attribute "Value", 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 attribute "Hours Run". The corresponding 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 containing 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 change all physical and pseudo data points depends on the operator's access level.

NOTE: In the case of configurable applications, only, if 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 following text string will be displayed:

```
RoomTemp------02
```

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

Suppress Alarm

The attribute "Suppress Alarm" allows the user 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
- non-critical 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 non-critical 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
"Min Limit"	optional critical or alarm status
"Max Limit"	optional critical or totalizer alarm status

While the attribute "Operating mode" always results in a critical alarm, the attribute "Alarm Type" offers a choice of critical or non-critical alarm classification for the attributes "Min Limit", "Max Limit", "Totalizer", and "Alarm Status".

System alarms description

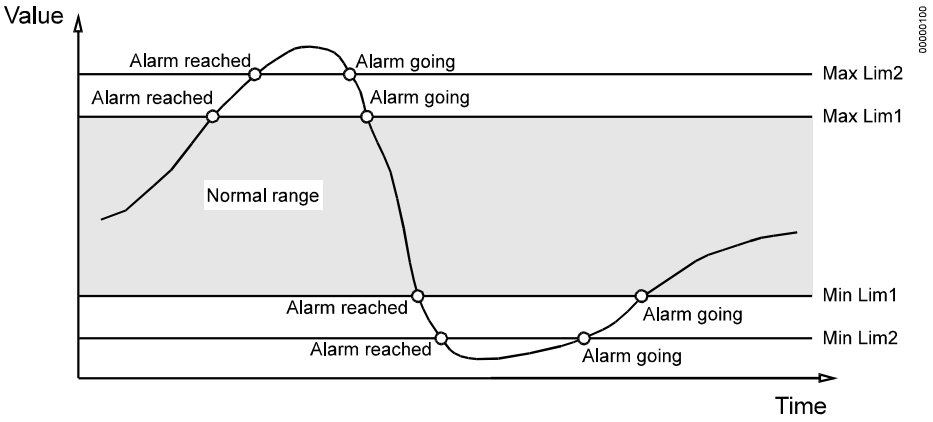
Operating malfunctions that arise within a controller, e.g. power failure or during communication with another Excel 5000 device, are displayed on the operator's terminal.

System alarms are always critical alarms.

Min. / 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

Honeywell

Control Products
Honeywell Inc.
Honeywell Plaza
P.O. Box 524
Minneapolis, MN 55408-0524
USA
http://www.honeywell.com

Control Products
Honeywell Limited-Honeywell Limitee
155 Gordon Baker Road
North York, Ontario
M2H 3N7
Canada
http://www.honeywell.ca

Control Products
Honeywell AG
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