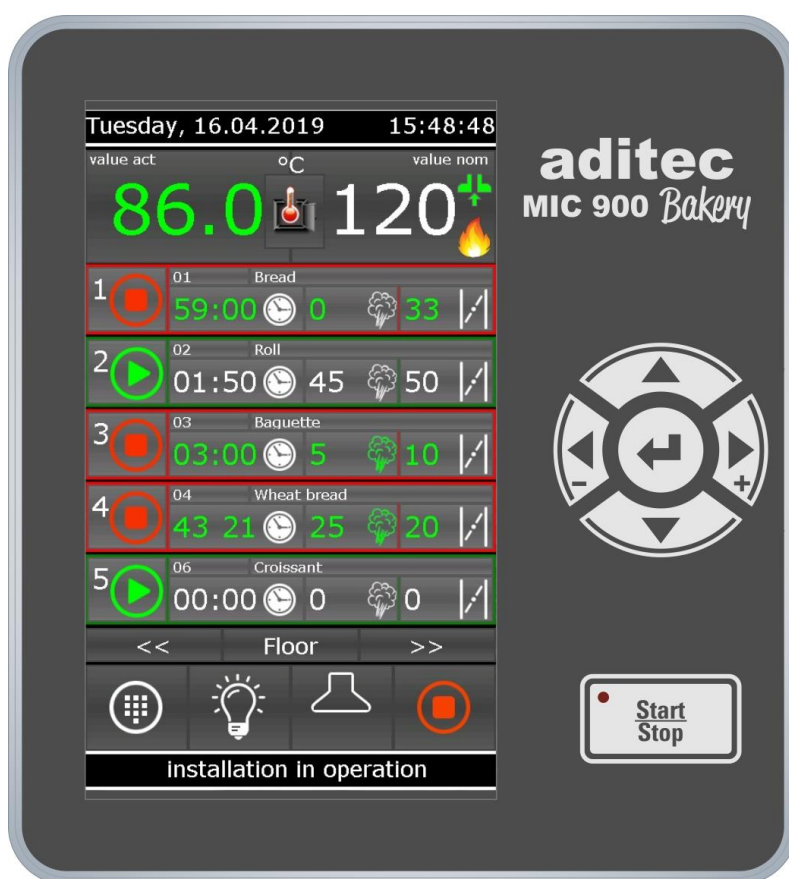# User Manual

MIC 990

Process controller for deck ovens

V90.04

Issue 18.03.2021_00

Measurement and Control technology Hardware development Software development Specialised electronics Food technology Process visualisation	aditec **CONTROLS for** **FOODTECHNOLOGY**	aditec gmbh Talweg 17 D-74254 Offenau Tel.:+49(0)7136 96122-0 Fax:+49(0)7136 96122-20 www.aditec.net eMail: info@aditec.net

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Contents

Symbols used in this user manual

The following symbols are used in this user manual to emphasize important information:

Symbol	Description
	This is a **Please note** or a **tip**.
	Be aware! This symbol points out potential problems and what to do to avoid them.
	Shows a sequence of actions that should be executed one after the other.

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1 Introduction

1.1 Overview

Processor **MIC 990**, with user-friendly touch panel, 7" TFT display with resistive touch technology, several interfaces and a housing of standard industrial quality, are designed for use in deck ovens.

In its standard version the controller is equipped with
4 Pt100 temperature inputs and
2 inputs which can be converted to Pt100 and current 4-20mA / voltage 0-10V or thermocouples (compliant with DIN EN 60584).

The following interfaces allow communication: LAN/Ethernet and USB Serial Port.

In order to adapt the controller for specific purposes each control loop can be used as a 2-point controller, XP controller or with PID behaviour.

MIC 990:
The standard version has 16 relay outputs
(12 normally open contact and 4 changeover contacts).

1.2   Display and operating area

The controller is sub-divided into an input/display panel and a control button panel.

1.2.1   Input and display touch panel

The upper half is a 7" touch display. Here you can change the different settings and information on program data and the input screens are shown.

1.2.2   Control buttons

The control buttons allow you to navigate through the operating elements with the help of the cursor buttons. Use the "Cursor-Enter" button to confirm the entries you have made.

MIC 990

Start / Stop	Starting and stopping programs.
	LED lights – control in operation
	LED flashes – end of the program

Cursor left -	Moving horizontally to the next operating element on the left.
Cursor right +	Moving horizontally to the next operating element on the right.
Cursor up	Moving vertically up to the next operating element. Entering number values (incremented).
Cursor down	Moving vertically down to the next operating element. Entering number values (decremented).
Cursor ENTER	Confirm the selected button/box

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1.3 Functions of the on-screen key pad
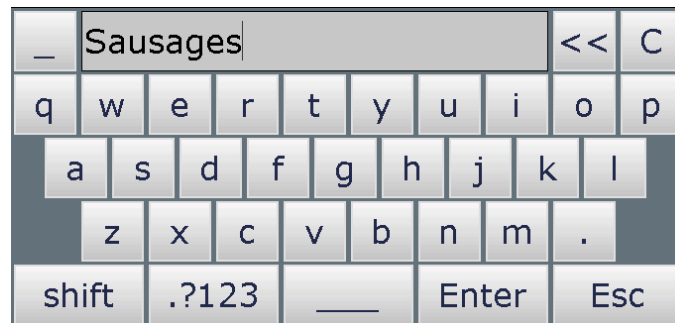

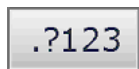**Figure 1:** Key pad

 - Insert/replace mode

 - Deleting individual symbols
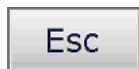
 - Deleting an entire text passage

 - Capital /Lower case letters

 - Numbers and special symbols

 - Confirm entry

 - Leaving the operation without changing the original settings

 - More special symbols

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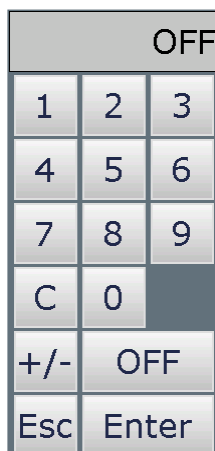FOODTECHNOLOGY

1.4 Entering numerical values

Figure 2: Numerical pad

A numerical pad is used to enter numerical values. It will be displayed when you have to enter values.

C — - Deleting the value in an entry box

+/- — - Changing the leading sign of a value

Esc — - Closing the keypad. Changes made to the nominal value are not saved.

OFF — - De-activating a nominal value

Enter — - Saving an entered value

⚠	**Be aware**
	The controller also allows you to enter negative temperature values:
	- In order to pre-program negative nominal values in a step, the installation manufacturer has to pre-program negative nominal value limits for chamber and core.
	- „0" can be entered as a nominal value. The nominal value „Off" is shown for chamber and core when a new program step is pre-programmed. . This means: the nominal value is deactivated. As soon as a value is entered (even if it is „0") the nominal value counts as activated. If you want to deactivate the nominal value later in the step, press the „Off" button.

1.4.1 Screen lock

All display functions are blocked when you press the „Enter" button during 3 sec. On the lower margin of the display appears "Lock". To deactivate the look, press the "Enter" button for 5 sec.

ℹ	Please not
	The program processing is independent of screen lock. If the screen lock is activated in operating mode the program will continue.
	The activated screen lock has no influence on the communication with VisuNet or Service program. If the screen lock is activated you can start and stop programs via VisuNet.
	This function is helpful when the unit is cleaned up.

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2 Standby

As soon as the controller has been connected to a power supply, it will automatically boot up and will display the message „Loading please wait...". This process can take up to 1 minute. Then you will get to the standby screen.

⚠	**Be aware**
	Please do not operate the touch screen with sharp implements i.e. pointed fingernails, pens/pencils, screwdrivers etc. Only use blunt, soft implements i.e. fingers, rubber pens.

Date display

Tuesday, 16.04.2019   15:48:48

Actual value display   **Unit**   **Nominal value display**

value act
52.5

°C

value nom
120

Day and time for nighttime preheating

Monday 05:00	Tuesday 04:45	Wednesday 06:00	Thursday 05:30
Friday 12:00	Saturday 10:00	Sunday 04:50	🌙

Quick access and standby mode
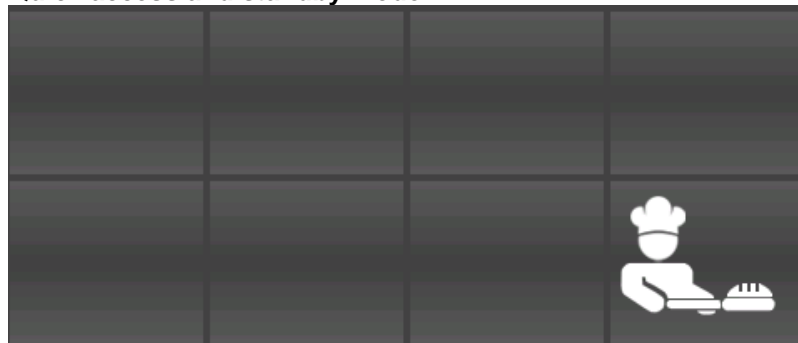
Task bar

Status bar

installation in operation

2.1 Actual and nominal values

Unit

Actual value · Symbol · Nominal value
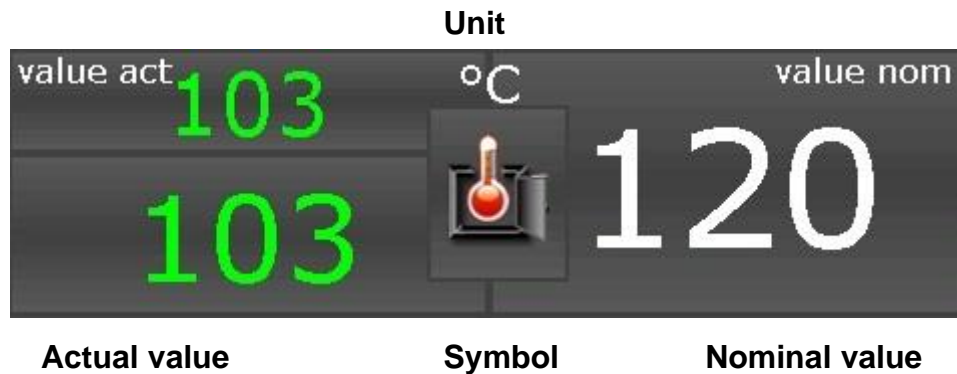
Actual value:
Currently measured sensor value

Symbol/Scale (combined button):
Shows the measured variable and the measuring scale.

Nominal value:
Nominal values for preheating

2.2 Task bar

2.2.1 Start page / profiles

Menu · Light · Exhaust air · Start

The task bar is sub-divided into 4 task buttons. If you leave the start page/standby by pressing a button, you can get back to standby by pressing the „Start page" button on any page you may be on.

Menu: Press the „Menu" button to get to the menu page
(see „Menu page", item 3, page 10)
Light: Here you can switch-on and switch-off the light in the oven
Exhaust air: switch-on and switch-of the exhaust air, quick tip you change between the level 1 and level 2, off
Start: Standby: here you start the preheating mode immediately
Preheating: stops the preheating mode and changes in to the standby mode
Operating: stops the operating mode and changes in to the standby mode
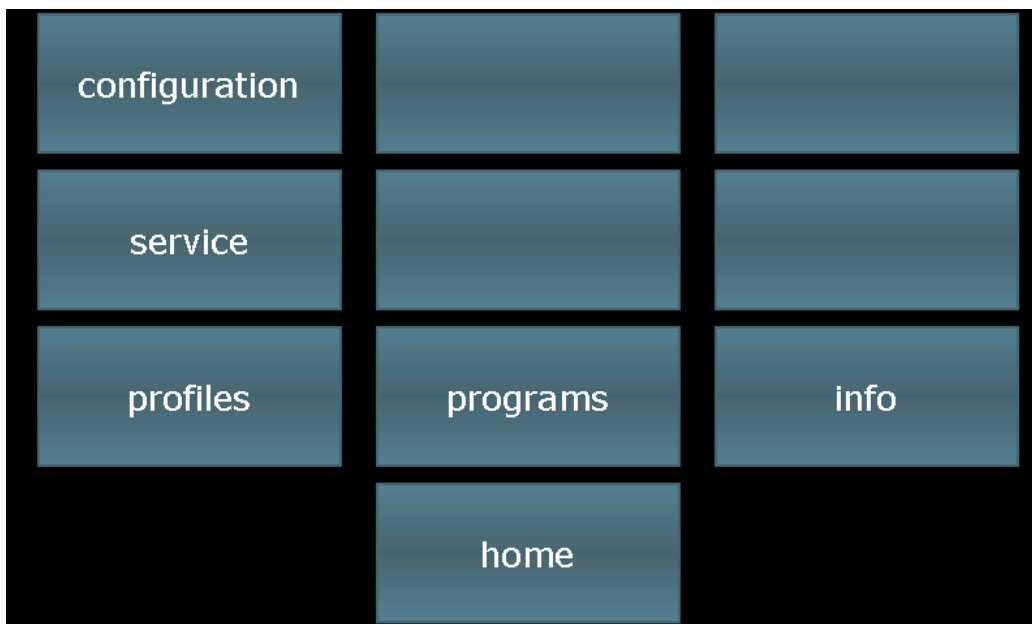
2.3   Information bar

On the information bar you can see messages, operating status, alarm messages and the system time.

```
installation not in operation          11:52:43
```

```
Sensor error: Chamber temperature      11:57:03
```

3   Menu page

The „Menu" page of the touch panel is arranged as follows:

- **Configuration:**
  System specific controller settings.
  The settings are protected by a password and can only be set up by a service technician.

- **Service:**
  Settings for the maintenance personnel on-site: Initial start-up, maintenance work etc.
  The settings are protected by a password and can only be set up by a service technician.

- **Profiles:**
  Settings for the operator/end user.
  These settings are not password protected.

- **Programs:**
  Opens the program selection page.

- **Information:**
  Display of the information about the controller version and settings.

- **Start page:**
  Back to the start page/standby

4 Programming mode

4.1 Selecting a program

To get to the „Program selection" menu press the "Program" box

Press a program to select it. Use the arrow buttons to navigate within the display. Alternatively, you can use the cursor button to navigation through the "program selection" list.
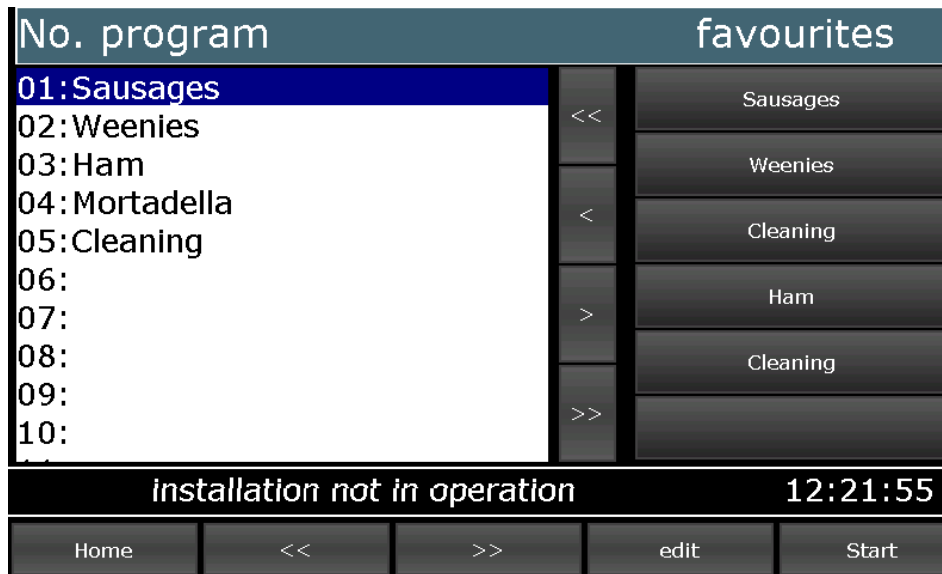

Figure 3: Program selection programming mode

Home	Back to the start page/standby
«	Skipping backwards in the program list by blocks of 9 programs
<	Skipping to the previous program
>	Skipping to the next program
»	Skipping forwards in the program list by blocks of 9 programs
edit	Editing, copying or deleting programs
Program	Programing mode

4.2 Editing program steps

Start on the „Program selection" display and highlight the program you want to edit by pressing on it. Now press the „Program" button on the task bar. Alternatively press the "Edit" button in the task bar. In the next window press also the "Edit" button.

4.2.1 Display for editing program steps

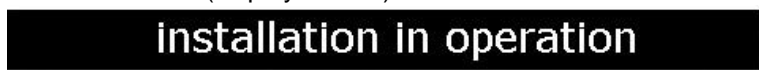Program bar (note: program selection, copying programs, program pictures)

| progra | 01 | Bread | 🍞 |

Step bar (note: process selection, copying steps)

| step | 01 | Baking |

Nominal values

Bakingtime	🕐 h/m	59:00
Steamtime	☁ sec	10
Flap time	/ sec	50

Information bar (display: status)

installation in operation

Task bar (back, program back, program forward, menu, start)

| back | < | > | Menu | Home |

ℹ️	**Please note**
	Program and steps can also be added, copied or deleted on the „Edit" page. You can get to the relevant sub-menu by pressing on the „Program" or „Step" box, respectively. *See „Copying, deleting and adding programs/steps", item4.2.4, page 13*

4.2.2 Entering nominal values

Press a nominal value box and a keypad will appear. Enter the relevant value and confirm it by pressing „Enter".

Also see 1.3 Entering numerical values, page 7

4.2.3 Select program image

By touching the „Picture" box appear separate images. Please select your program image and press „Enter".

	Hinweis

i	The program images located on the SD-card in the folder ProgImage. So they can easily be exchanged. The pictures have a resolution of 90 x 64 pixel and have the JPG-format.
	
	Creation of new images:
	    - Resolution of 90x64 (BxH) should not be exceeded.
	    - The image must have JPG-Format
	    - The image must have the following name:
	     Image_xxx.jpg (xxx = image number has to start with 001)
	    - Max. 999 images can be stored

4.2.4 Copying, deleting and adding programs/steps

Select the program you want to copy.

Change to the „Program selection" display.
Press the "Edit" box on the task bar. A selection window will open. Press „Copy".

edit
copy
delete
exit

You can copy the selected program into another program.
Enter the relevant program number and confirm with „Enter".

copy programs
program **01**
copy as
program [ ]
enter   **exit**

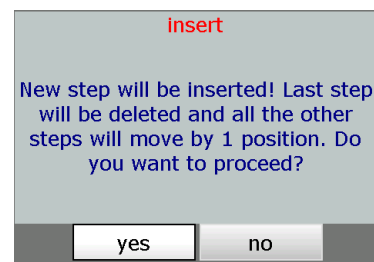| ⚠	**Be aware**
	A program is automatically copied when you press „Enter". **The program that originally occupied that position is overwritten!**

„Step number" box
Double click the „Step number" box and a menu window will open.
This allows you to add, copy or delete steps.

insert
Sequence
copy
delete
exit
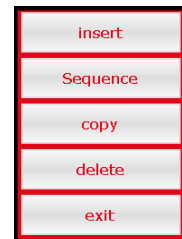
Adding
If you want to add e.g. a new 2. step, the pervious step 2 becomes step 3 . This means all steps are moved backwards by one position. Step 20 is deleted.
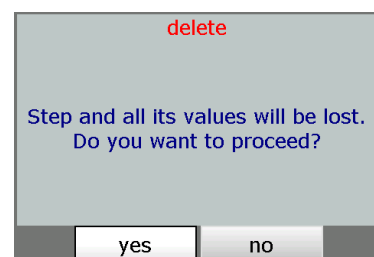
insert

New step will be inserted! Last step will be deleted and all the other steps will move by 1 position. Do you want to proceed?

yes	no

Copying
Copying a selected step into another program or into another position within the same program.

copy steps
step **04**   program **01**
copy as
step [ ]   program **01**
enter   **exit**

Deleting
Deleting a selected step. All subsequent steps move forward by one position.

delete

Step and all its values will be lost. Do you want to proceed?

yes	no

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⚠	**Be aware**
	A step is automatically copied when you press „Enter". **The step that originally occupied that position is overwritten!**

4.3   Setting up a program with VisuNet

VisuNet is a visualisation program for programming, automatic controlling, monitoring, logging, backing-up, telecontrolling/telemonitoring of installations and processes.

4.3.1   Enabling VisuNet

When you want to set up or edit programs you need the COMFORT version of VisuNet. The controller has to be enabled for this service. For further information contact your installation manufacturer or aditec.

4.3.2   Editing programs with VisuNet

For how to edit programs with VisuNet please see the user manual „VisuNet Base / Comfort / Premium" – Chapter 5 „Entering, changing, copying and starting programs".

5 Nighttime preheating

In the standby mode you can prepare everything for nighttime preheating or you can start directly the preheating.
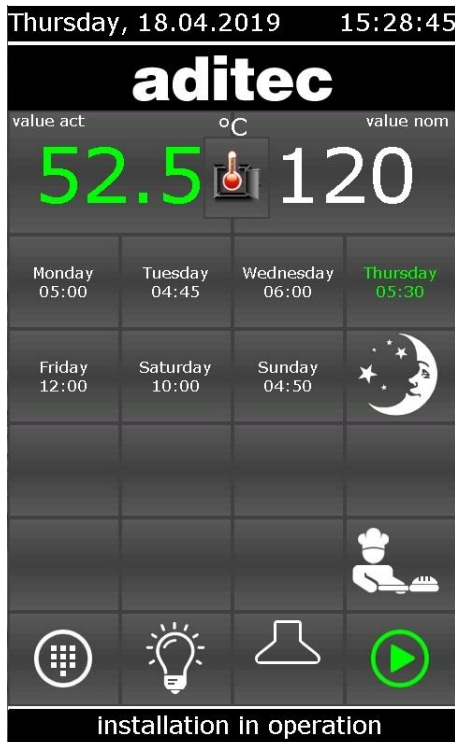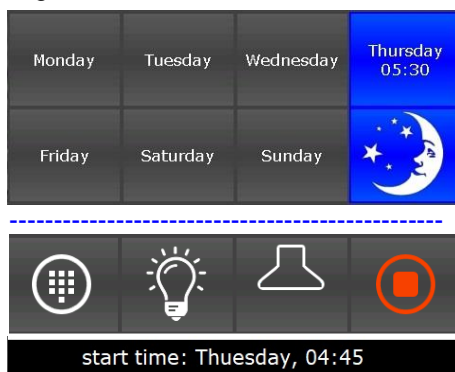
Set the desired nominal value for the prehaeating.

Select the start date. Predefined start times can be changed in Profil => Programming of start times.

For starting the preheating press the „Moon" button.

Touch the day or time box and entert he desired start time and start day. Confirm with "Enter" button.

If the start day and the start time are in the future begins the waiting time.
The selected day and the "Moon" are colored blue.
In the information bar appears the time.
After this time limit is reached the controller changes automatically in the preheating mode
With the „Start/Stop" button you can cancel the start process and return to the start page (standby).

i	**Please note**
	During the waiting time is running the „Stop" button flashes in the task bar. If you press the button the waiting mode will be cancelled. The controller returns in standby mode.

⚠	**Be aware**
	If administrators are actvated you must enter a password bevor the program starts. Only operators with the right to start programs can do it.

6 Preheating mode

Data display

Tuesday, 16.04.2019   15:48:48

Actual values	Units	Nominal values	
value act 52.5	°C	Sollwerte 121	Flap open, nominal temperature below the actual temperature
			Burner active

Current preheating time   **Operating mode preheating**

h/m
00:01 🕐 Heating up

or

Actual values

Istwerte 111 126	°C	Sollwerte 121	Flap closed, nominal temperature above/the same as the actual temperature

Current preheating time   **Operating mode ready**

h/m
00 09 🕐 Temperature ready!

Quick access and standby mode

Immediate change to the standby mode

Task bar

With the „Start/Stop" button you can cancel the start process and return to the start page (standby).
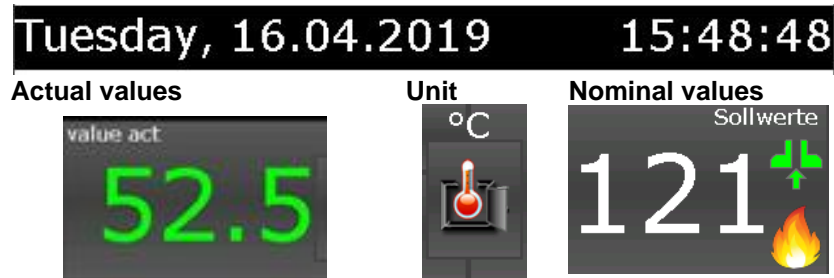
Status bar

Night Heatup

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7 Stand by mode

The controller is running.
After program start the button „Stop" will be highlighted in red. In the info bar appears the running text „Standby mode".

Data display

Tuesday, 16.04.2019   15:48:48

Actual values   **Unit**   **Nominal values**

value act
°C
Sollwerte

52.5   121

Deck overview (1-5 decks)

1	01	Bread	59:00	🕐 10	🌫 50	/
2	02	Roll	01:50	🕐 45	🌫 50	/
3	03	Baguette	03:00	🕐 20	🌫 25	/
4	04	Wheat bread	43:21	🕐 40	🌫 35	/
5	06	Croissant	00:00	🕐 0	🌫 0	/

Deck selection

| << | Floor | >> |

Task bar

Readinessmode

⚠	**Be aware**
	If administrators are activated you must enter a password bevor the program starts. Only operators with the right to start programs can do it.

7.1 Separate deck

Program-number   Program name

Deck number
Start button for
starting the
programs

Baking time   Steaming   Flap time
                       time

By pressing one of the boxes the controller changes over to deck
overview (see the separate dock overview)

7.1.1 Status display

Program out of
operation

Programm in
operation

Baking time

inactive   active

Baking nom. time is displayed   Baking act. time is displayed
Colon flashes – step time is counted
Colon don't flashes – step time is not counted

Steaming time

inactive   active

Steaming nom.   Steamin act.   Steaming act.
time   time   time is expired

Recharge of steaming time in operation (from V90.03)
Press the button   : Steam nuzzle is switched-on for the set time

Flap time

inactive   active

Steaming nom.   Steaming act.   Steaming act.   Flap time on the end of
time is displayed time is displayed time is expired the program (can be set
flap closed   flap closed   flap open   by the service technician)

The exhaust flaps of each single floor can be switched on or off manually at any time by pressing the button [/] (from V90.03)
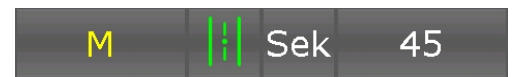
M [⫶]	M [/]
The flap is manually opened	The flap is manually closed

Status display: flap for each single floor

00:45 [/] m/s 00:45
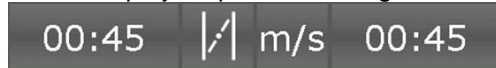
Flap is closed

Press the button [/] > M [⫶] Sek 45

Flap is open

Press the button [⫶] > M [/] Sek 45

Flap is closed

By pressing the button [M] or if you enter a new nominal value you leave the manual mode.

i	**Please note**
	The flap time keeps running independent from manual switching on/off.

7.1.2   Separate deck overview

Deck overview

Program number/
program name/
program image   `01  Bread`

Baking time   `59:00  🕐 h/m  59:00`

Steaming time   `10  sec  10`

Flap time   `50  [/] sec  50`

Actual values / Nominal values

Current deck
number   `1  ▶        exit`

Program start/-stop   **Leave the deck overview**

Deck selection

<<	Floor	>>

Floor
01:Floor
02:Floor
03:Floor
04:Floor
05:Floor

| Esc | Enter | << | >> |

Previous deck   Next deck

Select a deck

Program selection for one deck

01	Bread	

01		
1	2	3
4	5	6
7	8	9
C	0	
Esc	Enter	

Program number

Enter the desired program number, confirm with "Enter"

program

01:Bread
02:Roll
03:Baguette
04:Wheat bread
05:White bread
06:Croissant
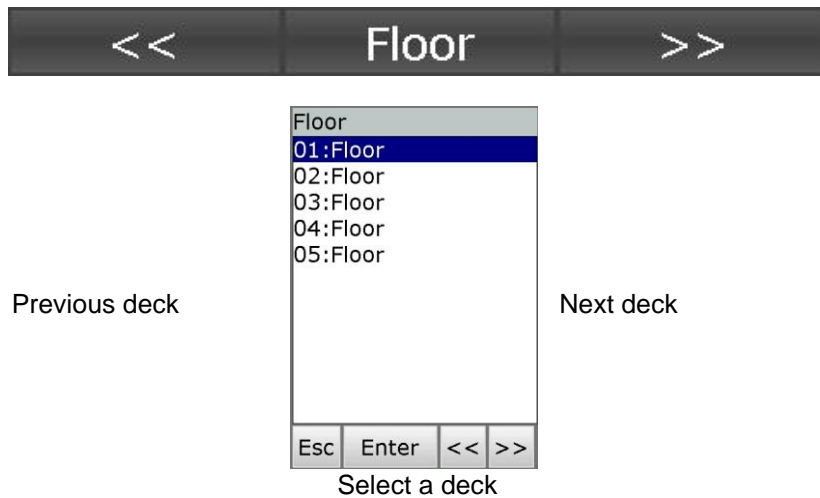
| Esc | Enter | << | >> |

Program name

A list of existing programs will open.
Select a program and press „Enter".
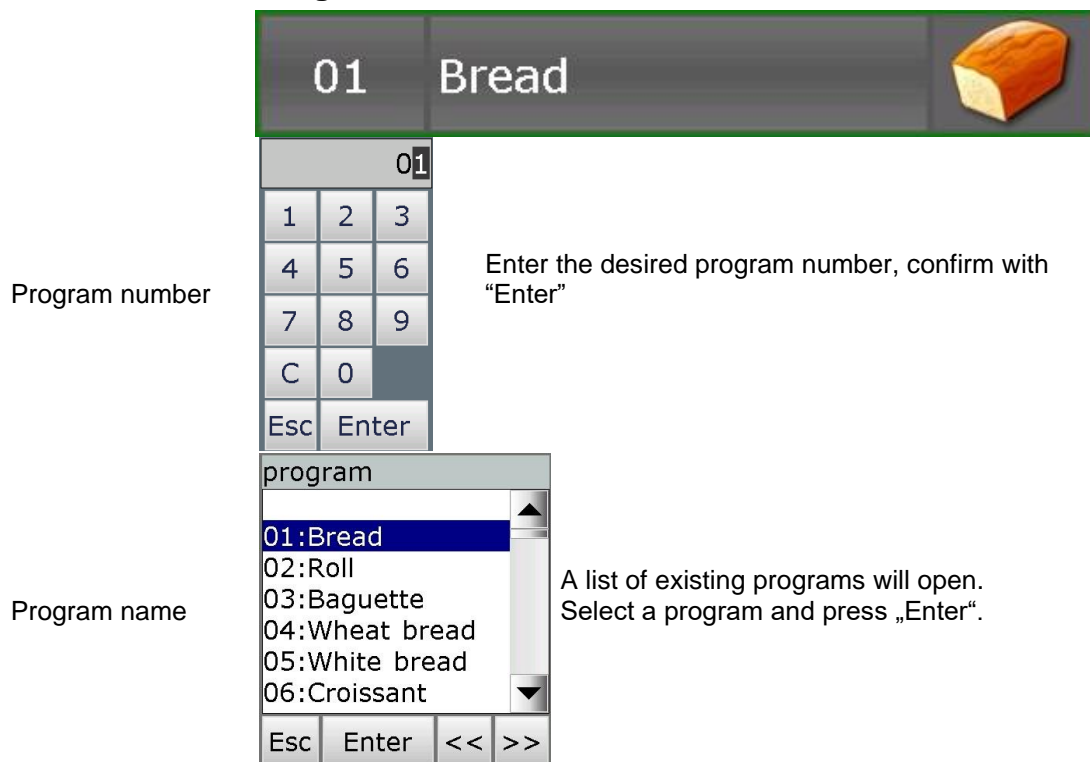
7.2   Shut-down conditions

When at least one of the shut-down conditions has been met, the program step will be terminated. If a particular nominal value has not been pre-programmed *(zero or OFF),* then the attached shut-down condition is disabled.

Shut-down conditions are:
▪ The nominal step time has run out and is 00.00

Unscheduled shut-down:
▪ Pressing the „Stop" button will terminate a program
▪ Chamber sensor defect generally terminates a program

> ⚠️ **Be aware**
>
> **An empty _(invalid)_ program step will be terminated immediately or not even started. A program step is considered valid when at least on process has been pre-programmed.**

## 7.3 Transient changes to the nominal values

In standby mode the nominal values can be transiently changed. This means the new nominal values are only valid for the current step and are not saved.

Press the relevant nominal value box and use the numerical pad that will appear to enter the new value. Confirm with „Enter".

7.4 Alarm signal

If an alarm incident has occurred, for example through digital inputs, limit value alarms or sensor failure, instead of chamber symbol the alarm symbol will displayed.

On the status bar you can see the alarm and the cause _(e.g. chamber sensor break)._ Press the alarm symbol to acknowledge the alarm and to stop the horn. The message will remain on the status bar.

Alarm signal

No fault

Chamber symbol is displayed.

Fault or Alarm   alternate
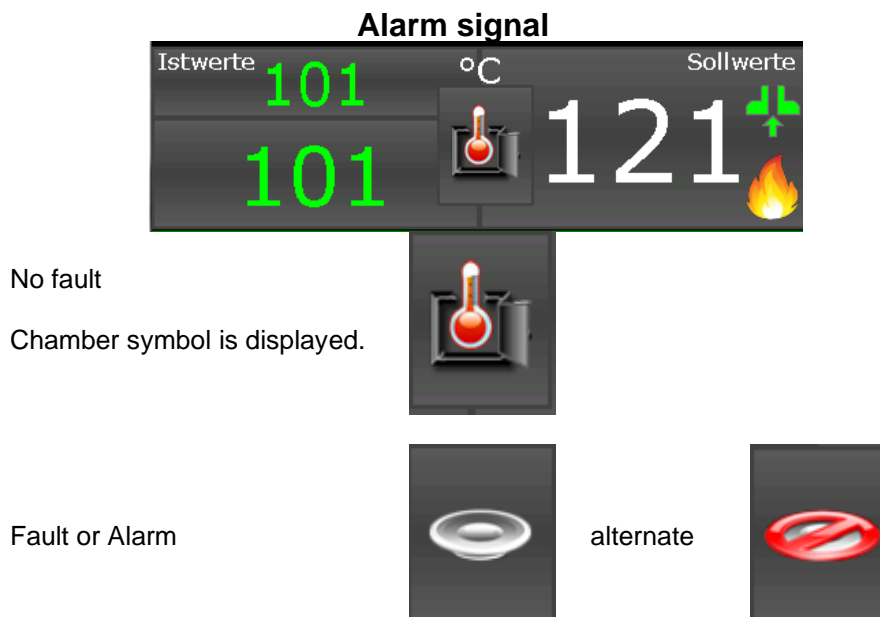
> ⚠️ **Be aware**
>
> Chamber sensor defect generally leads to program termination.

8 Information page

Standby   Menü   Info

On the info page the following information is shown: which type of device you have got, the software version, device number, IP number with port, MAC address, VisuNet if enabled and the system temperature.
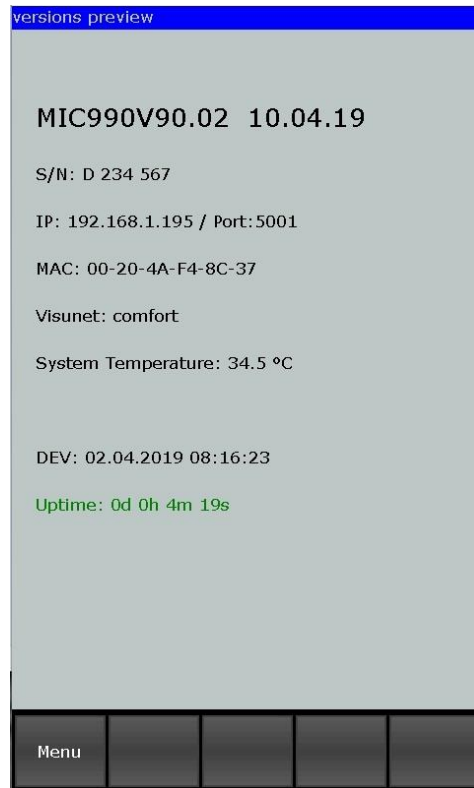
9 Profiles

Under „Profiles" all the functions are shown in the selected system language.

9.1 Date and time

If you want to make changes to the date and/or time, press the relevant box and use the on-screen keypad to enter the new date or time. Confirm with „Enter" on the numerical pad.
In order to apply this change, also press the „Enter" button on the task bar. The amended time will now appear on the info bar.

set date/time		Code 2001

hours   minutes   seconds
16   24   7

day   month   year
16   4   19

installation in operation

| Menu | profiles | | | Enter |

ℹ️	**Please note**
	The current date and Central European Time are pre-set.

9.2 Enabling and disabling a signal

Standby	>	Menü	>	Profile	>	Signal freigaben	>

This function allows you to switch off the „Signal" aggregate at specific times during the day or night. Select „Enabling signal" from the „Profiles" list " and a button „ON" or „OFF" will appear.

„OFF" = Signal is completely disabled.
„ON" = Signal function is enabled. This means that if the corresponding event happens, the relay „Signal" will switch. You can enter two additional times (from – to), putting a time limit on the signal function.

ℹ️	**Please note**
	With setting „00.00" to „00.00" the signal will be active all day.

⚠️	**Be aware**
	If a signal event transgresses a pre-programmed time lock interval, its state remains unchanged. **For example: the alarm signal in enabled from 7 a.m. to 5 p.m. Let's assume the signal comes on at 4.50 p.m., then it will remain on even beyond the time lock set for 5 p.m. The same is true vice versa. If an alarm happens before 7 a.m. the signal will not come on and will remain off even after 7a.m.**

9.3   Screensaver

A screensaver is supposed to prevent a constantly lit image from burning into the display during longer work breaks. The decrease in brightness after many hours of use is improved, but it can also be used for data protection reasons. It is terminated as soon as an input is made (e.g. by pressing a button or touching the touchscreen). To avoid unintentional pressing of a button on the screen below, the screen saver should be deactivated via the arrow keys.
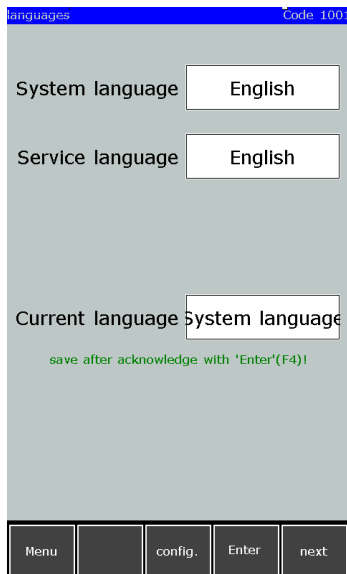
- Screensaver: aktivate/deactivate
- Screensaver selection: what should be displayed when the screensaver is activated

OFF	Analogue clock with date	Digital clock
Black screen	MIC990 03.05.2019	15:55:42

- Waiting time: Time after which the screen saver displayed if no input is made.

	Hint
ℹ	When the screen saver is activated, it can be previewed by pressing the F5 "Test" key.

	Be aware
⚠	When an alarm happens, the screensaver is closed and remains inactive until the alarm is cancelled.

9.4   Programming of start times

Here you can program start times referring to day of the week.
The programmed start times are displayed in standby mod and serve for the simply enter the nighttime preheating.
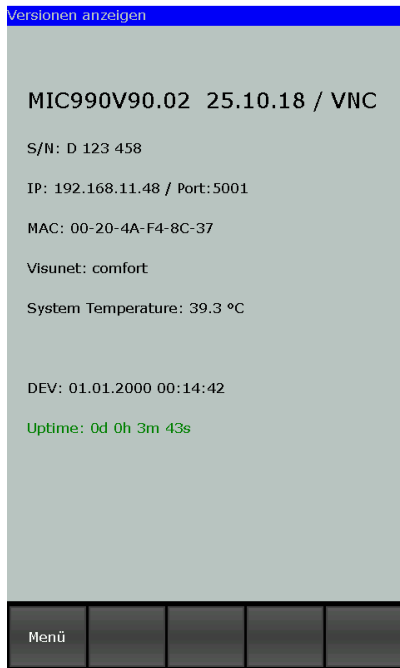

9.5   Show versions – Code 6789

From version V90.02 displays also the uptime.
Uptime means the duration of the operation since the last time the controller was started (switching on the voltage supply).

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```
Versionen anzeigen

MIC990V90.02  25.10.18 / VNC

S/N: D 123 458

IP: 192.168.11.48 / Port:5001

MAC: 00-20-4A-F4-8C-37

Visunet: comfort

System Temperature: 39.3 ºC


DEV: 01.01.2000 00:14:42

Uptime: 0d 0h 3m 43s




Menü
```

9.6   Loading programs

```
Menü  >  Profile  >  Enter  >  Programme laden  >  Enter
```

Settings for transport of program data from/to a USB-Stick.

```
data alignment

No USB memory is connected!

┌──────────────────────────┐
│  Load programs from USB  │
└──────────────────────────┘

┌──────────────────────────┐
│  Copy programs on USB    │
└──────────────────────────┘

┌──────────────────────────┐
│ Load program imeges from │
│           USB            │
└──────────────────────────┘

┌──────────────────────────┐
│ Copy program images on   │
│           USB            │
└──────────────────────────┘

┌──────────────────────────┐
│ Data logger is deactivated.│
└──────────────────────────┘

Menu    profiles
```

ℹ	Please note
	If no USB-Stick is inserted into the controller appears the message „No USB stick connected". Otherwise if a USB is detected appears the message "USB found!"

9.6.1 Loading programs from USB stick

The controller reads all programs from USB \ProgUSB\Program.adp. Thereby existing programs will be overwritten by new programs.

⚠	**Be aware**
	To read programms from USB the file name and path name must be exactly: USB: \ProgUSB\Program.adp

ℹ	Please note
	The setting is PIN protected if administrators are activated. Only users with the right "Create programs" are permitted to execute the option.

9.6.2 Copy programs to USB stick

The controller saves all programs to USB \ProgUSB\Program.adp.
Programs can be read subsequent from an other device MIC 990.

ℹ	Please note
	All settings are deactivated if no USB stick is insert in the controller.
	With the storage of program files the assignment of the program pictures to the programs will be saved too. If you want to read the programs in an other MIC 990 device we recommend always to copy the program pictures ant read them in the other device. (Otherwise it could be displayed no correct program pictures)

Furthermore there is the possibility to open and change the programs with the service program AsADBus.

ℹ	Please note
	The setting is PIN protected if administrators are activated. Only users with the right "Create programs" are permitted to execute the option.

9.6.3 Load program pictures to USB stick

The controller reads existing program pictures from USB \ ProgImage\ Image_xxx.jpg. Thereby existing program pictures will be overwritten by new program pictures with the same name.

⚠	**Be aware**
	To read program pictures from USB the path name must be exactly: USB: \ProgImage\. The picture files must have the name „Image_xxx.jpg". xxx means a 3-digit number between „001" und „099". (see item 4.2.3, p. 13)

ℹ	Please note
	The setting is PIN protected if administrators are activated. Only users with the right "Create programs" are permitted to execute the option.

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9.6.4 Copy program pictures to USB stick

The controller reads existing program pictures from USB \ ProgImage\ Image_xxx.jpg. Thereby existing program pictures will be overwritten by new program pictures with the same name.

⚠	**Be aware**
	To read program pictures from USB the path name must be exactly: USB: \ProgImage\. The picture files must have the name „Image_xxx.jpg". xxx means a 3-digit number between „001" und „099". (see item 4.2.3, p. 13)

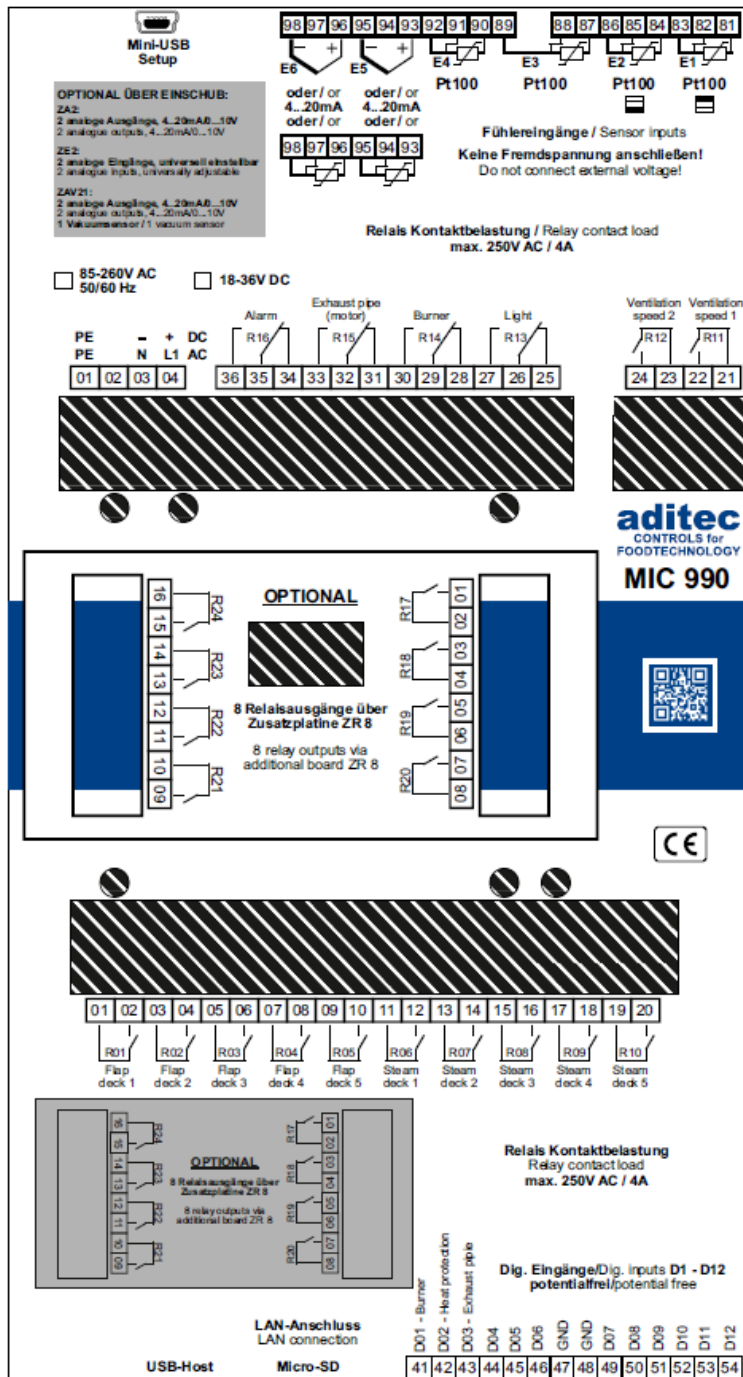| ℹ	Please note
	The setting is PIN protected if administrators are activated. Only users with the right "Create programs" are permitted to execute the option.

10 Power failure

If a program, which is currently in operation, is interrupted due to a power failure or because the device is switched off, the controller will resume the program as soon as power is restored.

⚠	**Be aware**
	The behaviour of the device in case of a power failure (depending on a pre-set temperature difference, „always" or „never") can be configured by your service engineer under configuration/various settings!

11 List of errors (possible problems)

Problem that has arisen	Possible causes	Possible solutions
Program does not start	Program is empty	
	Enter a waiting time („Start" button is flashing)	Press the „Start" button.
Program is terminated immediately after the start	Possible defect of the chamber, core or humidity sensor, display shows „EEE" for sensor break or „---" for sensor short circuit	Replace the broken sensor or call your service technician. After it has been replaced the temperatures have to be checked and the controller may have to be re-calibrated by the **service technician.**
Controller cannot be started	Power lead disruption	Disconnect the controller from the power supply for at least one minute, then reconnect it and try operating it again.

12 Connection diagram MIC 990

13 Technical data

See data sheet

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15 Safety instructions

To avoid any danger of electrocution, the housing must never be removed nor opened at the back. There are no parts inside that can be serviced by the user himself. Leave the servicing to the experts! To avoid any risk of fire or electrocution the appliance must not get wet nor be exposed to rain.

Manual: Read all safety instructions and all the items in the user manual before using the controller for the first time! Keep the safety instructions and the user manual in a safe place in case you need to refer back to it at a later date!

Installation instructions: Always make sure that the appliance is installed by an authorized and experienced specialist. Please follow the specific safety instructions as well as the VDE guidelines during installation. The appliance should only be fitted in an approved and specifically designed waterproof switching cabinet (metal housing) and should only be used for the purpose it was designed for and within the limits of its technical data.

We recommend that any down-streamed inductors (relays, contactors, signal transmitters, valves etc.) with RC elements should be checked for interference. These are available on the retail market (e.g. Siemens 3 RT1916, Klöckner-Moeller, etc.).

Analogue in- and outputs: Do not apply separate source voltage to the in- and outputs (4-20mA / 0-10V and Pt100).

Sensor leads: The leads for the sensors should be run separately from any voltage carrying leads, this also includes control wires carrying separate source voltage. It is vitally important that the sensor leads have a metal shielding and that this shielding is connected to the sensor housing itself.

Relay outputs: The relay outputs are potential free and the maximal load of 250V AC and 4A must not overshoot.

Water and humidity: Never use the unprotected appliance near water, e.g. near a bath tub, water basin, sink, washing machine, a damp cellar or near a swimming pool. The appliance is only waterproof on the front (according to the control IP65 or IP67). The back and side panels must not come into contact with water.

Ventilation: The appliance must have sufficient ventilation, the ventilation slits in the housing must never be covered up, or blocked by objects that may have been inserted into the slits.

The effects of heat: Keep the appliance away from heat sources, like radiators, heating conduits, ovens, and other elements that may radiate heat.

Energy sources: The appliance should only be connected to the power sources that are specified in the user manual or on the appliance housing itself.

Cleaning: Clean the display and the operator interface only with a damp, soft and clean cloth without any chemical or mechanical substances. Do not use sharp-edged tools or pointed objects or other mechanical aids.

Appliance not in use: When you know the appliance is not going to be used for a longer period of time, it should be disconnected from the mains.

Contaminants: You have to be extremely careful that neither liquids nor foreign objects can get into the appliance through the openings in the housing. If objects or liquids have contaminated the inside of the appliance, it has to be disconnected and sent in to the manufacturer immediately.

Servicing after damage: The appliance may only be serviced by a qualified specialist. The user should only do the servicing tasks he is meant to do according to the user manual. For servicing that exceeds his authority, he should always contract a specialist.

	Be aware
⚠️	**Never make any technical alterations to the appliances,** unless they were specifically approved by aditec GmbH. **Unauthorized alterations will invalidate your warranty.**

For enquiries, orders and repair enquiries, please contact us at the following address:

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