Small programmable controller MKA 500

» for cooking, universal, baking, kettle units and autoclaves

aditec
CONTROLS for FOODTECHNOLOGY

» OVERVIEW

The controller **MKA 500** can be used in **cooking, universal, baking and kettle units and autoclaves**. The controller is freely adjustable and can be easily adapted to many applications.

The controller has **4 configurable measurement inputs** and **5 potential free output relays**. The controller regulates the **temperature for heating or cooling as well as humidification and dehumidification**. **As Switch-off condition you can choose between operating time and/or core temperature**. **Delta-T cooking and F-value** are possible after corresponding coding.

Free assignment of the output relays. Each relay can be pre-programmed as **leading or lagging, with delayed start-up or delayed switch-off or pulsating**.

Via an optional interface you can transfer data between the MKA 500 and a computer. The controller is easier to program via PC with installed **aditec service programme**.
The connection is made using a serial **Mini-USB interface (only for programming, configuration and firmware update) or optionally via LAN or serial interface RS485 (necessary for VisuNet recording).**

Via an **optional USB host interface**, a **data logger function** is possible.

The visualization programme **aditec "VisuNet"** offers the possibility of linking the controller to a super-ordinate programme-surveillance and of logging temperature trends, treatment types etc. It thereby ensures a comprehensive quality control of the products treated in the units in accordance with HACCP and IFS (ISO 9000). Use the **remote maintenance system/telecontrol system aditec control** to not only run and monitor the **VisuNet programme** but to also make changes to the system, from anywhere you happen to be.

CE

» FEATURES

- Number of programs and steps individually adjustable. **A total of maximum 450 steps, but maximum 50 programs can be selected. 1 hand program.**
- **Adjustable program names** (max. 8 characters)
- Easy and systematic adjustment of configuration data
- **5 programmable processes**
- **Adjustable process names** (max. 8 characters)
- **5 potential-free relay outputs,** programmable
- **4x galvanically insulated analogue inputs,** programmable as: Pt100, three-wire connection and all thermocouples according to standard DIN EN 60584 or digital inputs. Additional 2 inputs can be programmed as current or voltage inputs.
- **Mini USB port** for programming, configuration and firmware update
- **6x Button-LED's** (red) for status display
- **2,7" OLED-Display** with 128 x 64 pixel and 16 grey scales,
- **Robust stainless steel housing** (1.4016)
- Programmable nominal value limits
- Program memory is retained during a power cut.
- Programs that were interrupted through a power cut are resumed at the point where they stopped when power is restored.
- Process runtimes adjustable in h:min or min:sec or continuous operation
- **Preselecting time** (starting time) adjustable via Real Time Clock or date
- Detection of sensor defects (break or short circuit)
- **24 limit value alarms**
- **Change-over of the measuring unit from °C to °F**

» OPTIONS

- **Ethernet LAN** for connection to a PC or networking via **additional board ZSL**
- **USB Host interface** via **additional board ZSU**
- **RS485** for connection to a PC via **additional board ZS4**
- **2 analogue outputs** 4…20mA/0…10V via **additional board ZA2**
- **CAN** for connection of CAN MODULES via additional **plug-in board ZSC**
- **2 analogue outputs** 4…20mA/0…10V und **1 vacuum sensor** via **additional board ZAV21**
- Possibility of networking for visualization and recording according to HACCP with **aditec-VisuNet**

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» TECHNICAL DATA

General Data		
Dimensions	(HxWxD) 96 x 96 x 120 mm	With WP-frame: (HxW) 138 x 138 mm
Mounting dimensions (recess size)	(HxW) 90mm x 90mm	Mounting depth with terminals 112,5 mm
Material	Robust stainless-steel housing (1.4016)	Particularly suitable for the food industry
Own weight	750 g	
Operating temperature	-20 to +65°C	
Storage temperature	-50 to +75°C	
Protection class	IP65 according to EN 60529	
Electrical Data		
Power supply Residual ripple	85~260V AC / 50-60 Hz 5%	**Optional:**18-36VDC
Current consumption	63 mA at 230 VAC	
Power consumption	14,5 VA	
Relay contact load	Max. 250V AC 4A	
Electrical safety	According to DIN EN 61010-1 overvoltage category III	
Electromagnetic compatibility	According to DIN EN 61326-1 Emitted interference	Class A for industrial use
	Interference immunity	For industrial requirements
Battery lifetime (for Real Time Clock)	8-10 years	
Display	2,7" OLED-Display with 128 x 64 pixel and 16 grey scales	
Connection for relay outputs and power supply	Removable lift terminals with screws	Wire min. 0,5 - max. 2,5 mm^2
Connection for dig./analogue inputs	Removable terminals in Push-in-technology (spring terminals)	Min. 0,14 mm^2 - max.1,5 mm^2 wire cross-section Minimum length of wire end sleeves 10mm

4x analogue inputs

Sensor		Type	Additional settings	Measuring range	Measuring unit	Accuracy	Ambient temperature effect	
E1 + E2	E3 + E4	Pt100	-	-100… 500 °C (-148… 932 °F)	°C / °F	≤ 0,1%	≤ 100ppm/°C	Adjustable nominal value limitation via code
		TFG80H	-	0…100 % relative humidity	%	≤ 0,6%	≤ 100ppm/°C	
		Type K: NiCr-Ni	-	-200…1372 °C (-328…2501 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ T: Cu-CuNi	-	-200… 400 °C (-328… 752 °F)	°C / °F	≤ 0,5%	≤ 100ppm/°C	
		Typ B: Pt30Rh-Pt6Rh	-	250…1820 °C (482…3308 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ E: NiCr-CuNi	-	-200…1000 °C (-328…1832 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ J: Fe-CuNi	-	-210…1200 °C (-346…2192 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ N: NiCrSi-NiSi	-	-200…1300 °C (-328…2372 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ R: Pt13Rh-Pt	-	-50…1768 °C (-58…3214 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
		Typ S: Pt10Rh-Pt	-	-50…1768 °C (-58…3214 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C	
⊖		Power	0(4)...20 mA	-9.999…30.000	variable	≤ 0,3%	≤ 100ppm/°C	
		Voltage	0...1 V / 0(2)...10 V	-9.999…30.000	variable	≤ 0,1%	≤ 100ppm/°C	
E70 - ZAV 21		Vacuum AG4	ADW	0…100 %	variable	**Optional via additional board ZAV21**		
E5 – E8		See data sheet CAN-MODUL MAE24				**Optional via ZSC + CAN MODUL MAE24**		
E81-E90		Ext.LAN		variable	variable	Connect. to partner unit with the external sensors		

4x digital inputs		
D1, D2, D3, D4	Via analogue inputs	Adjustable
12x digital inputs optional via additional board ZSC + CAN MODUL MD12		
D5 – D16	Optional via ZSC + CAN MODUL MD12	
4x incremental inputs		
Via analogue inputs	Up to 3 Hz (180 pulses/min) Number of pulses -9.999…30.000	Variable

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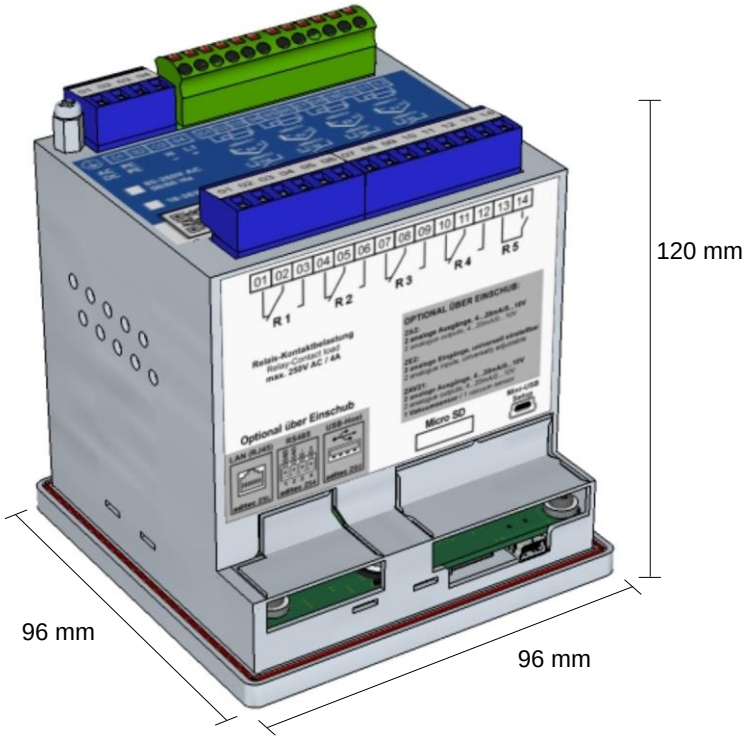
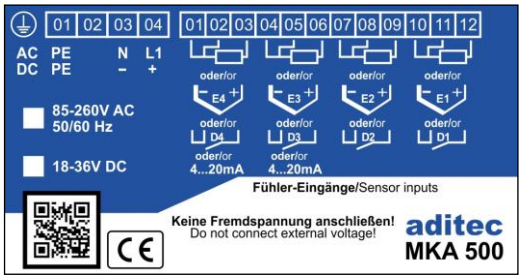
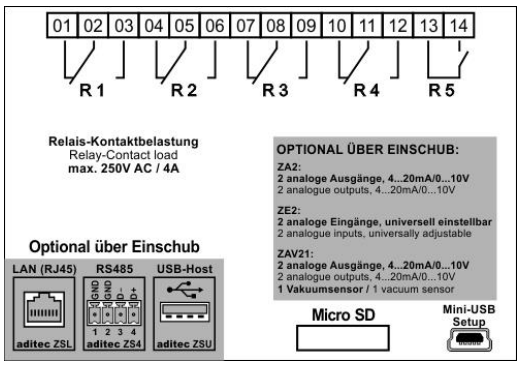
2x analogue outputs (optional) via additional board ZA2		
A1 and A2	0(2)-10V with $R_{Last} \geq 1000\ \Omega$ or 0(4)-20mA with $R_{Last} \leq 500\ \Omega$	**Optional via additional board ZA2**
2x analogue outputs (optional) via additional board ZSC + CAN module MAE24		
A3 and A4	See data sheet CAN module MAE24	**Optional via ZSC + CAN module MAE24**
5x relay outputs		
R1…R5	Potential free contacts, switching capacity 250V AC, 4A	4 change-over contacts 1 closer
6x relay outputs (optional) via additional board ZSC + CAN module MR6		
V1…V6	See data sheet CAN module MR6	**Optional via ZSC + CAN module MR6**
Interfaces		
1	Mini-USB	
1 memory	µSD Card Slot	For Micro-SD cards up to 32 GB
1	USB-Host	**Optional**: **additional board ZSU**
1	LAN	**Optional**: **additional board ZSL**
1	RS485	**Optional**: **additional board ZS4**
1	CAN	**Optional**: **additional board ZSC**
Galvanic isolation		
Mains input 85~264VAC/120~370VDC	1,5kV AC/1min	**Optional: Power input 18-36VDC -> 2,5kV Test 1 minute and 1mA max.**
Sensor inputs (analogue inputs)	1 kV	
Serial interfaces: - USB (mini) - LAN - RS485 - CAN	 ---- 1,5 kV 1 kV 1,5 kV	 **Optional** **Optional** **Optional**

» DIMENSIONS + CONNECTION DIAGRAM







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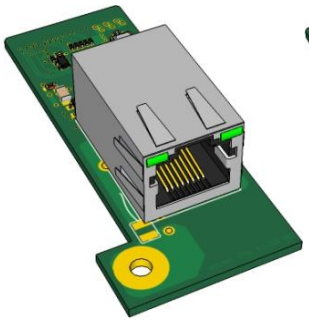
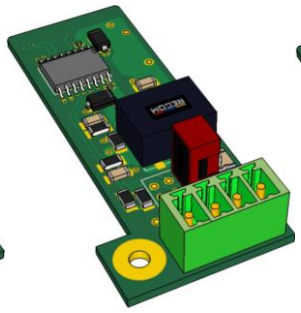
» ADDITIONAL BOARDS / OPTIONS SUITABLE FOR SUBSEQUENT INSTALLATION

Slot left:

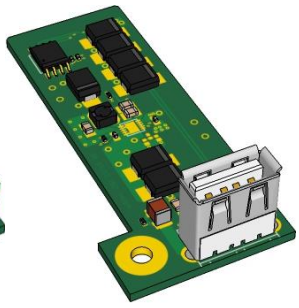
▶ ZSL
additional board
Ethernet



▶ ZS4
additional board
RS485



▶ ZSU (on demand)
additional board
USB-Host



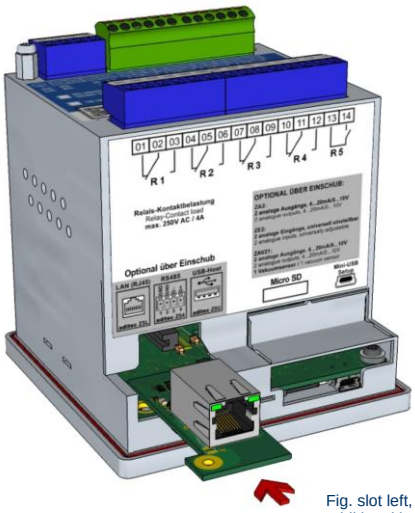


Fig. slot left,
additional board ZSL

Slot right:

▶ ZAZ
additional board
2 analogue outputs

▶ ZAV21
additional board
2 analogue outputs +
1 vacuum sensor

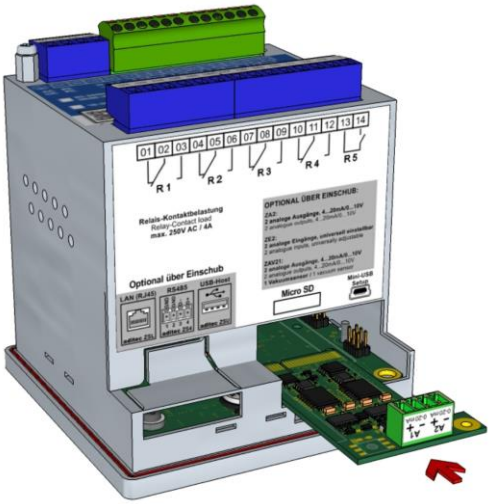
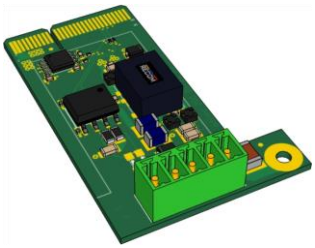


Fig. slot right,

▶ ZSC
additional board CAN
(MKA 500 from SW V00.11 and
from HW 09/21)



▶ CAN-Modules
for subsequent expansion via
ZSC

▶ 1 x MR 6

▶ 1 x MAE 24

▶ 1 x MD 12

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