

# Small programmable controller MKA 120

» for cooking, baking and kettle units

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CONTROLS for  
FOODTECHNOLOGY

## » Overview



The controller **MKA 120** is suitable for **cooking, baking, kettle units and much more**. The device is freely adjustable, flexible and can be adapted for many applications.

The controller has **2 temperature measurement inputs** and **3 potential free output relays**. The controller regulates the **temperature for heating or cooling**. **Switch-off condition you can choose between operating time and/or core temperature**. **Delta-T cooking and F-value** are possible with according encoding.

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**.

The **serial interface** enables you to transfer data between the MKA 120 and a computer. The controller is easier to program via PC with installed **aditec service program**.

The connection is made using **Mini-USB (exclusively for programming, configuration and firmware update)** or optionally via **LAN (necessary for VisuNet recording)** or serial interface **RS 485**.

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.



## » FEATURES

- Number of programs and steps individually adjusted. **Max.99 steps total, but max.30 programs selectable, 1 manual program**
- Easy and systematic adjustment of configuration data
- **Programmable processes**
- **3x potential-free relay outputs**, programmable
- **2x galvanically isolated analogue inputs** programmable as: PT100 (three-wire connection with automatic line compensation), all thermocouples (according to standard DIN EN 60584) like type K: NiCr-Ni, Pt100 or digital inputs
- **Mini USB connection** (mini-USB Port for programming, configuration and firmware update)
- **4x button-LED** (red) for status display
- **OLED-Display** with 128 x 64 pixel and 16 grey scales, 2,7"
- **Robust stainless steel housing** (1.4016)
- Programmable nominal value limits
- Program memory will be 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 at 00h : 01min up to 99h : 59min or continuous operation
- Preselecting time (starting time) adjustable via real-time clock/date
- Detection of sensor defects (break or short circuit)
- **5 value alarms (limit values)**
- **Change-over of the measurement °C - °F**

## » OPTIONS

- **Ethernet LAN** for connection to a PC or network via **additional board ZSL**
- **RS485** for connection to a PC via **additional board ZS4**
- Possibility of networking for visualisation and recording according to HACCP with **aditec-VisuNet**

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## » TECHNICAL DATA

| General data                                  |                      |   |                                 |   |                                       |                            |  |
|---|----------------------|---|---------------------------------|---|---------------------------------------|----------------------------|--|
| Dimensions                                    |                      | (HxWxD) 96mm x 96mm x 52mm<br>(depth with terminals 63mm)       |                                 | With WP frame (HxW) 138 x 138 mm  |                                       |                            |  |
| Mounting dimensions (recess size)             |                      | (HxW) 90mm x 90mm   |                                 |   |                                       |                            |  |
| Material                                      |                      | Robust stainless steel housing (1.4016)                         |                                 | Ideal for use in the food industry  |                                       |                            |  |
| Own weight                                    |                      | ca. 500 g   |                                 |   |                                       |                            |  |
| Operating temperature                         |                      | -20 to +65°C  |                                 |   |                                       |                            |  |
| Storage temperature                           |                      | -50 to +75°C  |                                 |   |                                       |                            |  |
| Protection class                              |                      | IP65 according to EN 60529                                      |                                 |   |                                       |                            |  |
| Electrical data                               |                      |   |                                 |   |                                       |                            |  |
| Power supply                                  |                      | 85~260VAC/120~370 VDC   |                                 | <b>Optional:</b> 18-36VDC   |                                       |                            |  |
| Residual ripple                               |                      | 5%  |                                 |   |                                       |                            |  |
| Current consumption                           |                      | Min. 36 mA at 85 VAC  |                                 |   |                                       |                            |  |
|   |                      | Max. 58 mA at 260 VAC   |                                 |   |                                       |                            |  |
| Power consumption                             |                      | Max. 9,5 VA   |                                 |   |                                       |                            |  |
| Contact load of the relay                     |                      | Max. 250V AC, 4A  |                                 |   |                                       |                            |  |
| Electrical safety                             |                      | According to DIN EN 61010-1<br>overvoltage category III         |                                 |   |                                       |                            |  |
| Electromagnetic compatibility                 |                      | According to DIN EN 61326-1<br>emitted interference             |                                 | Class A for industrial use  |                                       |                            |  |
|   |                      | Interference immunity   |                                 | For industrial requirements   |                                       |                            |  |
| Battery lifetime (for real-time clock)        |                      | 8-10 years  |                                 |   |                                       |                            |  |
| Display                                       |                      | OLED-Display with 128 x 64 pixel,<br>16 grey scales, 2,7"       |                                 |   |                                       |                            |  |
| Connection for relay outputs and power supply |                      | Removable lift terminals with screws                            |                                 | Wire min. 0,5 - max.2,5 mm <sup>2</sup>   |                                       |                            |  |
| Connection for dig./analogue inputs           |                      | Removable terminals in Push-in-technology<br>(spring terminals) |                                 | Min. 0,14 mm <sup>2</sup> - max. 1,5 mm <sup>2</sup><br>wire cross-section<br>with 10 mm wire end sleeves |                                       |                            |  |
| 2x analogue inputs                            |                      |   |                                 |   |                                       |                            |  |
| Sensor  | Type                 | Additional settings   | Measuring area                  | Measuring unit  | Accuracy                              | Ambient temperature effect | Adjustable nominal value limitation via code |
| E1 + E2                                       | Pt100                | -   | -100... 500 °C (-148... 932 °F) | °C / °F   | ≤ 0,1%                                | ≤ 100ppm/°C                |  |
|   | Type K: NiCr-Ni      | -   | -200...1372 °C (-328...2501 °F) | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type J: Fe-CuNi      | -   | -210...1200 °C (-346...2192 °F) | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type T: Cu-CuNi      | -   | -200... 400 °C (-328... 752 °F) | °C / °F   | ≤ 0,5%                                | ≤ 100ppm/°C                |  |
|   | Type B: Pt30Rh-Pt6Rh | -   | 250...1820 °C ( 482...3308 °F)  | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type E: NiCr-CuNi    | -   | -200...1000 °C (-328...1832 °F) | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type N: NiCrSi-NiSi  | -   | -200...1300 °C (-328...2372 °F) | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type R: Pt13Rh-Pt    | -   | -50...1768 °C ( -58...3214 °F)  | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
|   | Type S: Pt10Rh-Pt    | -   | -50...1768 °C ( -58...3214 °F)  | °C / °F   | ≤ 0,4%                                | ≤ 100ppm/°C                |  |
| Increment                                     | D1 - D4              | Up to 3 Hz (180 pulses/Min)<br>Number of pulses -9.999...30.000 | variable                        |   |                                       |                            |  |
| TFG80H  | -                    | 0...100 % relative humidity                                     | %                               |   |                                       |                            |  |
| 2x digital inputs                             |                      |   |                                 |   |                                       |                            |  |
| D1, D2  |                      | Via analogue inputs   |                                 |   | Adjustable                            |                            |  |
| 3x relay outputs                              |                      |   |                                 |   |                                       |                            |  |
| K1, K2, K3                                    |                      | Potential free contacts,<br>switching capacity 250V AC, 4A      |                                 |   | 3 change-over contacts                |                            |  |
| 3x serial interfaces                          |                      |   |                                 |   |                                       |                            |  |
| 1   |                      | Mini-USB  |                                 |   |                                       |                            |  |
| 1   |                      | LAN   |                                 |   | <b>Optional:</b> additional board ZSL |                            |  |
| 1   |                      | RS485   |                                 |   | <b>Optional:</b> additional board ZS4 |                            |  |

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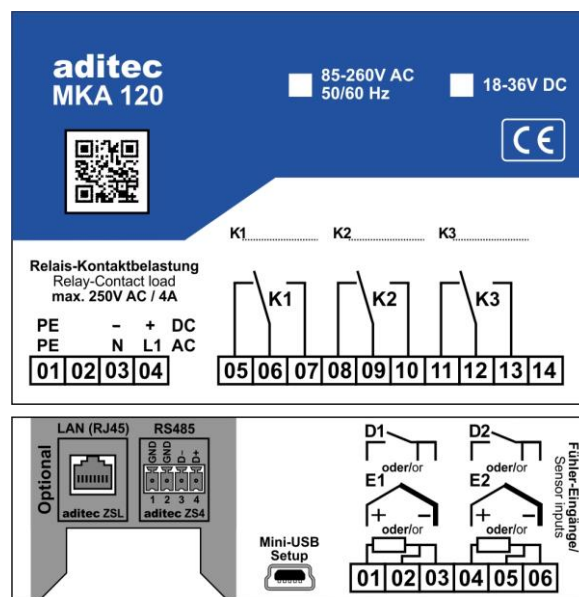
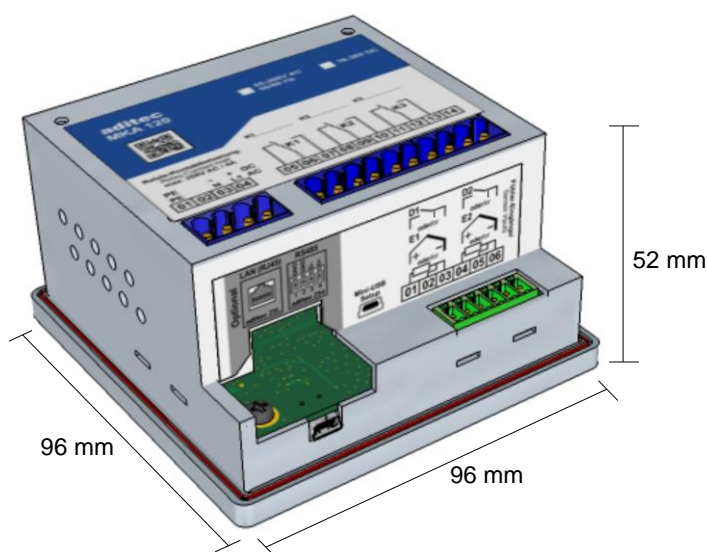
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## » TECHNICAL DATA

### Galvanic isolation

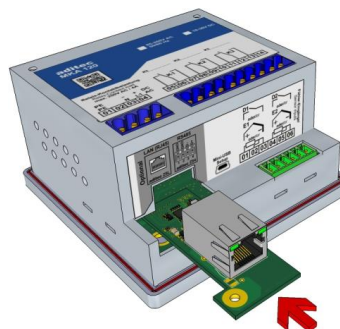
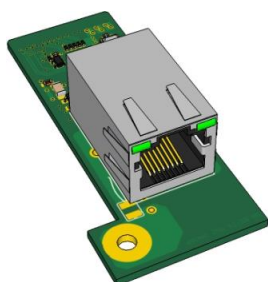
|  |                         |  |
|--|-------------------------|--|
| Mains input<br>85~264VAC/120~370VDC                    | 4 kVAC/1min             | <b>Optional:</b> Power input 18-36VDC -> 2,5kV<br>test 1 minute and 1mA max. |
| Sensor inputs (analogue inputs)                        | 1 kV                    |  |
| Serial interfaces:<br>- USB (mini)<br>- LAN<br>- RS485 | -----<br>1,5 kV<br>1 kV | <b>Optional</b><br><b>Optional</b>   |

## » DIMENSIONS + CONNECTION DIAGRAM



## » ADDITIONAL BOARDS / OPTIOS SUITABLE FOR SUBSEQUENT INSTALLATION

**ZSL:**  
ADDITIONAL BOARD  
ETHERNET



**ZS4:**  
ADDITIONAL BOARD  
RS485

