

Process controller MIC 3000

» for universal cooking and smoking chambers,
air conditioned smoke and maturing chambers

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CONTROLS for
FOODTECHNOLOGY

» OVERVIEW

The process controller **MIC3000** with touch screen surface of 7" TFT-Display in resistive touch technology, several interfaces, a housing conforming to industrial standard is designed to be used in **universal cooking and smoking chambers, as well as climatic smoke and maturing chambers.**

The standard model of the controller has **4 PT100 temperature inputs** and **2 transposable inputs between PT100 and power 4-20mA/voltage 0-10V or thermocouples** (according to standard DIN EN 60584).

PT100 can be connected as two-wire circuit or as three-wire circuit. In three-wire connection a lead compensation is not necessary because it takes place automatically. At 2-wire connection a digital lead compensation can be done.

The standard version of the controller has **24 relay outputs (16 closers, 8 changeover contacts) and 12 digital inputs.**

The controller can be expanded with 2 analogue inputs or 2 analogue outputs (transposable between 0..20mA and 0..10V).

For communication there are the following serial interfaces: **LAN/Ethernet and USB Serial Port. Via the USB Serial port you can make a firmware update any time.**

Up to 8 relays via additional board ZR8 or up to **72 relays, up to 48 digital inputs, several analogue in- and outputs with additional modules** can be allocated as an option.

To be ideally suited to the required task, each control loop can be pre-programmed to be a **two-point controller, a XP-controller or PID.**

The **serial interface enables you to transfer data between the controller MIC3000 and a PC.** Programming of the controller via a PC is easier because of the **aditec service programme.** The visualization programme **aditec "VisuNet"** offers the possibility of linking the controller to a super-ordinate programme-surveillance and of logging temperature and humidity trend, processes 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 make changes to the system** from anywhere you happen to be (Internet).

aditec Serviceprogramm—free of charge for our customers!

An easy to use, menu-guided service programme for the basic configuration, which means freely programmable relays, processes, programme steps, as well as user programmes with user-defined labelling of programmes under WIN WIN7 / 8.0 / 8.1 / 10 / Server 2008 / Server 2012.



MIC3000 (7" Display)

» FEATURES

- Brilliant 7" TFT-colour display with touch screen surface in resistive touch technology, suitable for industrial application
- Anodized aluminum frame, robust stainless steel case over, ideally suited for the food industry
- Number of programs and steps individually adjusted, max.1980 steps total, but max.99 programs and 99 steps selectable
- Easy operation
- Text display can be switched to a different language
- Most important texts are freely programmable
- Messages as scrolling text display
- Configuration is protected by codes
- 48 programmable process texts
- in- and outputs are freely programmable
- programmable nominal value limits
- all nominal values can be displayed during operation and transiently changed
- option of either relative humidity control or impulse humidifying (interval steaming)
- each control loop can be pre-programmed to be a two-point controller, a XP-controller or PID
- Delta-T-cooking
- F-value-cooking (FC 70-10), FC 121-10 or individually
- Options for shut down (at end of a step) are: Time limit, exceeding the core temperature value or the humidity value (drying), FC-value or cooling (falling below the core temperature value)
- Step time up to 99h : 59min or continuous operation
- Copying, inserting or deleting steps
- Step repetition
- Entering a batch number
- Autom. increasing the batch number (+1) at progr. start
- User rights for administrators
- Actual value alarms (limit value) for temperature and humidity
- Change-over of the measurement unit °C - °F
- Interfaces: LAN (RJ45), USB Serial Port for PC connection. Via the USB Serial port you can make a firmware update any time.
- Programme that were interrupted through a power cut are resumed at the point where they stopped when power restored
- Freely programmable logic with AND/OR linked and timer

» additional features for climate control:

- Individual nominal value entry for heating and cooling (min./max. temperatures, humidity)
- Gentle motor start-up
- Control of ventilation motor (also infinitely variable) is dependent on temperature and/or humidity (intelligent air-circulation control)
- Automatic shut-down of the cooling function (cooling aggregate) through user-defined upper limit of actual and/or nominal values
- Regulation with outside air / Enthalpy

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» TECHNICAL DATA

General data		
Material front	Aluminium frame, naturally anodized	
Housing	Robust stainless steel housing (1.4016)	
Cooling	Passive (without fan)	
Dimensions (incl. terminals)	External dimension: WxHxD (mm) 194x327x102	With built-in additional board ZR8: 194 x 327 x 132
	Mounting dims. (cut-out): WxH (mm) 137 x 282	
Own weight	3100 g	
Operating temperature	-20 to +65°C	
Storage temperature	-30 to +75°C	
Air humidity	35% - 80% (non-condensing)	
Atmosphere	Non-aggressive gases	
Protection class	IP65 front	
	IP 20 rear side	
Electrical data		
Power supply	85~260V AC	Optional: 18-36V DC
Residual tittle	5%	
Current consumption	130 mA	at 230V AC
Power consumption	30 VA	24 relays are controlled
Electrical safety	DIN EN 61010-1 Overvoltage category III	
Electromagnetic compatibility	DIN EN 61326-1 emitted interference, interference immunity	Class A for industrial use, for industrial requirements
Battery lifetime (for real-time clock)	8-10 years	
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 with 10 mm wire end sleeves
Display		
LCD size	7" (17,8 cm screen size)	
Resolution	800 x 480 WVGA	
Aspect ratio	16:9	
Technology	TFT	
Colours	16.7 millions	
Backlight	LED	
Luminance	330 cd/m ²	
Contrast ratio	400:1	
Touch	resistive	

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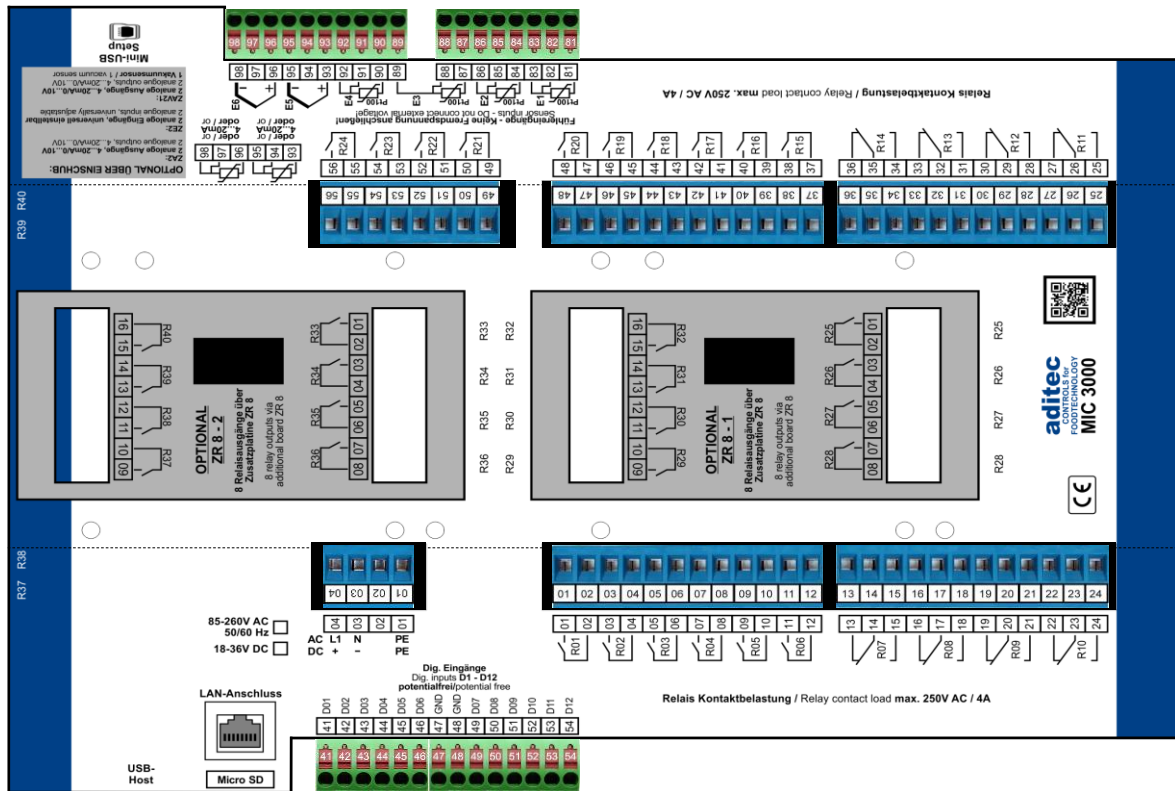
6x analogue inputs (plus 2x optional)						
Sensor	Type	Measuring range	Accuracy	Ambient temperature effect		
E1-E4	Pt100	-100... 500°C (-148... 932°F)	≤0,1%	≤100ppm/°C	Extendable with 2 analogue inputs via additional board ZE2 (on request) and/or extendable to 16 inputs via additional modules MAE 24	
	TFG80H	0...100 % relative humidity	≤0,6%	≤100ppm/°C		
	P1000A	Potentiometer:1000Ω	≤0,12%	≤100ppm/°C		
①	E5 - E6 (E7 + E8 optional)	Type K: NiCr-Ni	-200...1372°C (-328...2501°F)	≤0,4%		≤100ppm/°C
		Type T: Cu-CuNi	-200... 400°C (-328... 752°F)	≤0,5%		≤100ppm/°C
		Type B: Pt30Rh-Pt6Rh	250...1820°C (482...3308°F)	≤0,4%		≤100ppm/°C
		Type E: NiCr-CuNi	-200...1000°C (-328...1832°F)	≤0,4%		≤100ppm/°C
		Type J: Fe-CuNi	-210...1200°C (-346...2192°F)	≤0,4%		≤100ppm/°C
		Type N: NiCrSi-NiSi	-200...1300°C (-328...2372°F)	≤0,4%		≤100ppm/°C
		Type R: Pt13Rh-Pt	-50...1768°C (-58...3214°F)	≤0,4%		≤100ppm/°C
		Type S: Pt10Rh-Pt	-50...1768°C (-58...3214°F)	≤0,4%		≤100ppm/°C
		0(4)...20mA	0..20 mA with R _{in} = 200Ω	≤0,33%		≤100ppm/°C
		0(2)...10V	0-10V with R _{in} = 100kΩ	≤0,13%		≤100ppm/°C
		0...1V	0-1V with R _{in} = 100kΩ	≤0,1%		≤100ppm/°C
Sensor HC2	Depending on sensor type	≤0,1%	≤100ppm/°C			
2x analogue outputs (optional)		Output areas				
A1 and A2		0(2)-10V with R _{Last} ≥ 1000 Ω or 0(4)-20mA with R _{Last} ≤ 500 Ω		Extendable up to 6 outputs via additional module MAE 24 or additional board ZA2		
12x digital inputs						
D1...D12		Potential free, D1..D10 usable as counting input to 1 kHz, pulse duration min. 0.5 ms, pause duration min. 0.5 ms		Extendable to 48 digital inputs via additional modules MD 12		
24 x relay outputs						
R1...R24		Potential free contacts switching capacity (250V AC, 4A), 8 change-over contacts and 16 closers		Extendable with 16 relay outputs via 2 additional board ZR8 and/or extendable up to 72 outputs via additional modules MR6		
Serial interfaces						
USB		1x USB Host				
		1x MiniUSB serial port				
Ethernet/LAN		1x 100Mbit Ethernet/LAN (RJ 45)				
CAN		1 x Can Bus (system bus)		Communication with additional boards		
Memory		1x MicroSD Card Slot, MicroSD card to 32GB				
Galvanic isolation						
Mains input 85~264VAC/120~370VDC		4 kV AC/1min		Power input 18-36V DC -> 2,5kV Test 1 min. and 1mA max.		
Sensor inputs (analogue inputs)		2 kV				
Digital inputs		3,75 kV				
Analogue outputs		4 kV				
Relay outputs		4 kV				
Serial interfaces						
- LAN		1,5 kV				
- USB Host		---				
- USB MiniUSB SerialPort		---				

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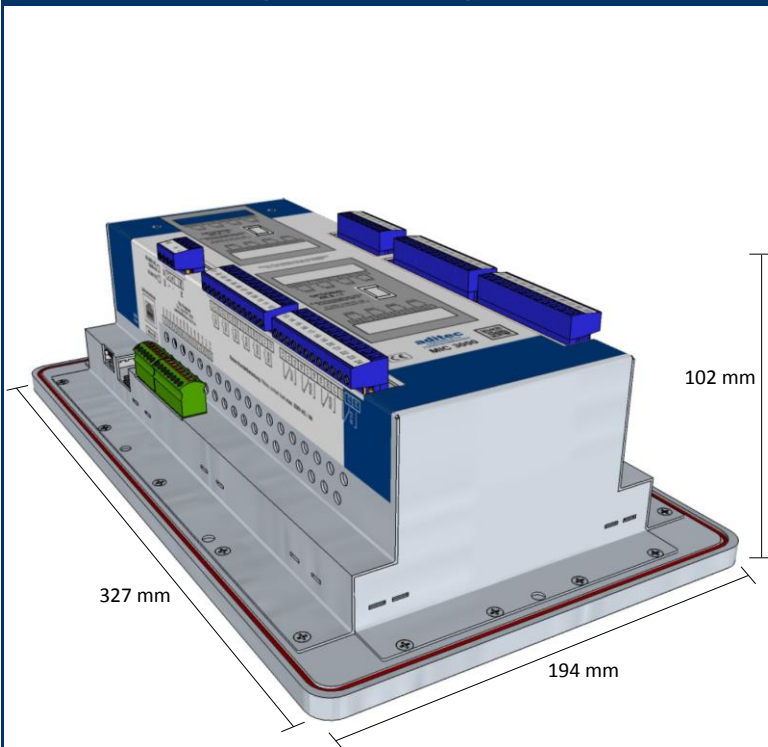
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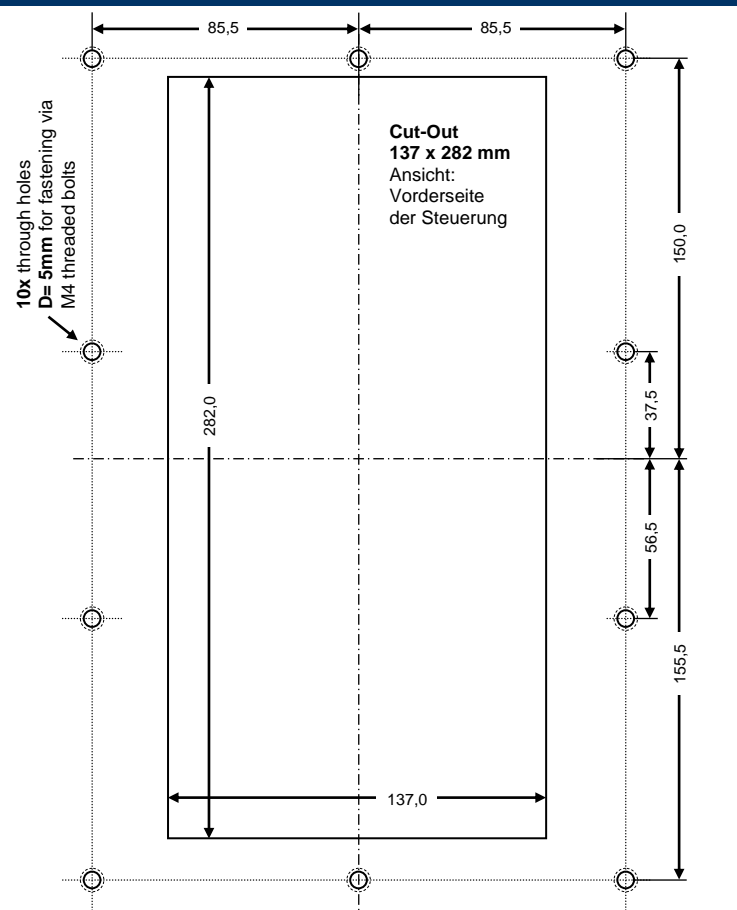
» CONNECTION DIAGRAM



» DIMENSIONS (with terminals)



» CUT-OUT



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» ADDITIONAL BOARDS / OPTIONS SUITABLE FOR SUBSEQUENT INSTALLATIONS

► **ZA2:**
ADDITIONAL BOARD
2 ANALOGUE OUTPUTS
4...20mA/0...10V



► **ZAV21:**
ADDITIONAL BOARD
2 ANALOGUE OUTPUTS,
1 VAKUUM SENSOR

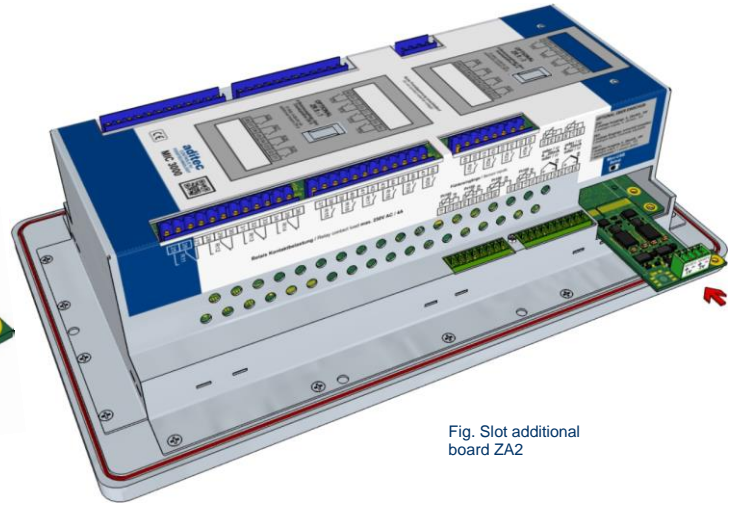


Fig. Slot additional board ZA2

► **ZE2: (on request)**
ADDITIONAL BOARD
2 ANALOGUE INPUTS
freely adjustable

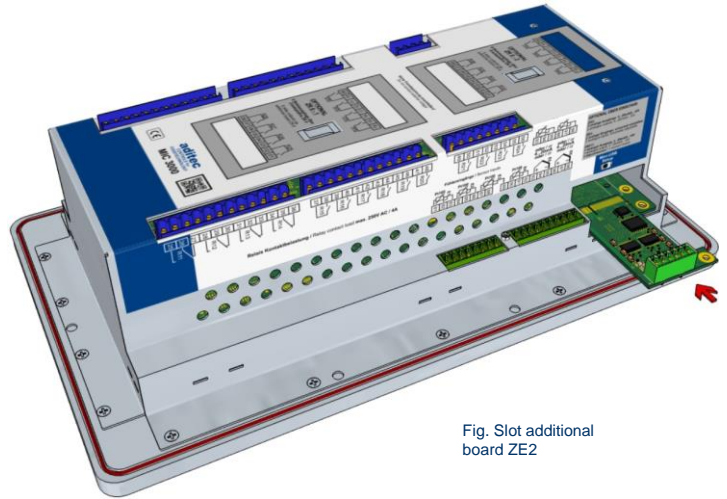
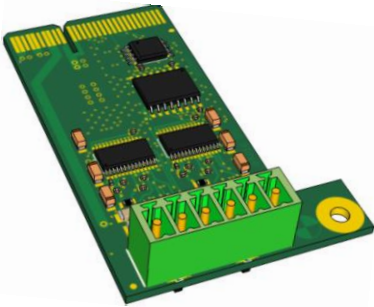


Fig. Slot additional board ZE2

► **2x ZR8:**
ADDITIONAL BOARD
8 RELAY OUTPUTS (16 total)

