

# Process-controller MIC 1100

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

**aditec**  
CONTROLS for  
FOODTECHNOLOGY

## » OVERVIEW

The process controller **MIC1100** with touch screen surface of 5" 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 **2 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 **18 relay outputs (14 closers, 4 changeover contacts) and 6 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.**

Optionally it is possible to equip the controller with up to 8 relays via additional board ZR8S (on request) or **up to 32 digital inputs** via additional board ZD32 (on request). Up to **72x relays, 48x digital inputs, several analogue in- and outputs with additional modules and an additional board ZSC** (on request) can be allocated as an option.

**Optionally it is possible** to equip the controller with an **additional 8x relay** with a ZR8S additional board or with an **additional 32x digital inputs** with a ZD32 additional board. Up to **72x relays, 48x digital inputs**, various analogue inputs and outputs with additional modules and a ZSC additional board (on request) are also possible.

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 MIC 1100 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.



## » FEATURES

- Brilliant 5" 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
- highly resistant foil keyboard
- Number of programs and steps individually adjusted, max.1980 steps total, but max.99 programs and 99 steps selectable
- Easy, systematical configuration setting
- 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)	DIN standard / German Industry Norms
Cooling	Passiv (lüfterlos)	
Dimensions	External dimensions: BxHxD: 137 x 234 x 120 mm Depth with terminals: 131 mm	BxHxD with built-in additional board ZR8S or ZD32: 137 x 234 x 148 mm Depth with terminals: 157 mm
Mounting dimens. (cutout):	BxH: 92 x 186 mm	
Weight	1900 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	105 mA	at 230 VAC
Power consumption	24 VA	18 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 <sup>2</sup>
Connection for dig./analogue inputs	removable terminals in Push-in-technology (spring terminals)	min. 0,14 mm <sup>2</sup> – max. 1,5 mm <sup>2</sup> wire cross-section with 10 mm wire end sleeves  with 10 mm wire and sleeves
Display		
LCD size	5" (12,7 cm screen size)	
Resolution	800 x 480 WVGA	
Aspect ratio	16:9	
Technology	TFT	
Colours	16.7 millions	
Backlight	LED	
Luminance	400 cd/m <sup>2</sup>	
Contrast ratio	400:1	
Touch	Resistive	

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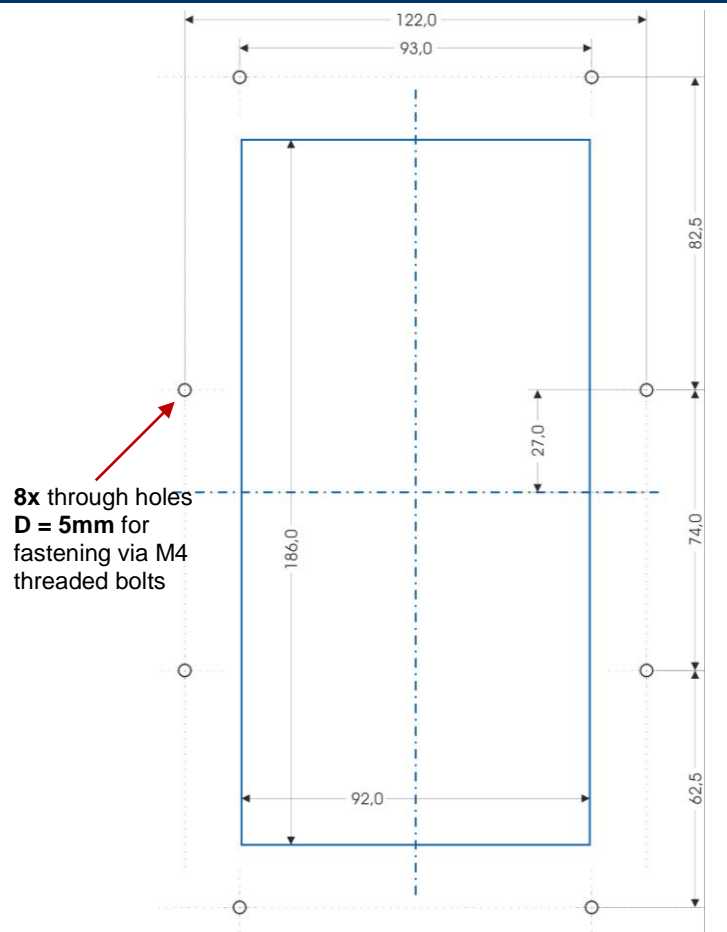
## » TECHNICAL DATA

4 x analogue inputs (plus 2 x optional)								
Sensor	Type	Additional setting	Measuring range	Meas.unit	Accuracy	Ambient temper.-influence		
E1 + E2  E3 + E4 (E5 + E6 optional)	Pt100	-	-100... 500 °C (-148... 932 °F)	°C / °F	≤ 0,1%	≤ 100ppm/°C	Adjustable nominal value limit via code  <b>Optional: 2 analogue inputs</b> expandable to <b>14 inputs</b> via additional board <b>ZE2</b> (on request) and/or via additional modules <b>MAE24</b> (on request)	
	TFG80H	-	0...100 % relative humidity	%	≤ 0,1%	≤ 100ppm/°C		
	P1000A	-	Potentiometer: 1000Ω		≤ 0,1%	≤ 100ppm/°C		
	Typ K: NiCr-Ni	-	-200...1372 °C (-328...2501 °F)	°C / °F	≤ 0,4%	≤ 100ppm/°C		
	Typ J: Fe-CuNi	-	-210...1200 °C (-346...2192 °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 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
	Sensor HC2	-		Measuring range depending on type of sensor		≤ 0,1%		≤ 100ppm/°C
E70 - ZAV 21	Vacuum AG4	ADW	0...100 %	Variable	Optional via additional board ZAV21			
2x analogue outputs (optional)		Output areas						
A1 and A2		0(2)-10V with $R_{Last} \geq 1000 \Omega$ or 0(4)-20mA with $R_{Last} \leq 500 \Omega$		<b>2 analogue outputs</b> extendable up to 6 outputs via additional module MAE24 (on request) or additional board ZA2				
6x digital inputs								
D1..D6		potential free, usable as counting input to 1 kHz, pulse duration min. 0.5 ms, pause duration min. 0.5 ms		Extendable to <b>48 digital inputs</b> via additional board <b>ZD32</b> (on request) and additional modules <b>MD12</b> (on request)				
18x Relay outputs								
R1..R18		Potential free contacts switching capacity (250V AC, 4A), 4 change-over contacts and 14 closers		<b>8 relay outputs</b> extendable to <b>72 relay outputs</b> via additional board <b>ZR8S</b> (on request) and/or via additional modules <b>MR6</b> (on request)				
Serial interfaces								
USB		1x USB Host 1x MiniUSB Serial Port						
Ethernet/LAN		1x 100Mbit Ethernet/LAN (RJ 45)						
CAN (optional)		1x Can Bus (Systembus)		communication with additional boards via additional board <b>ZSC</b> (on request)				
Memory		1x MicroSD Card Slot		For MicroSD Card to 32GB				
Galvanic isolation								
Mains input 85~264VAC/120~370VDC		4 kVAC/1Min		<b>Optional:</b> Power input 18-36VDC -> 2,5kV Test 1 minute and 1mA max.				
Sensor inputs (analogue inputs)		2 kV						
Digital inputs		3,75 kV						
Analogue outputs		4 kV						
Relay outputs		4 kV						
Serial interfaces		1,5 kV						
- LAN		---						
- USB Host		---						
- USB MiniUSB SerialPort		---						

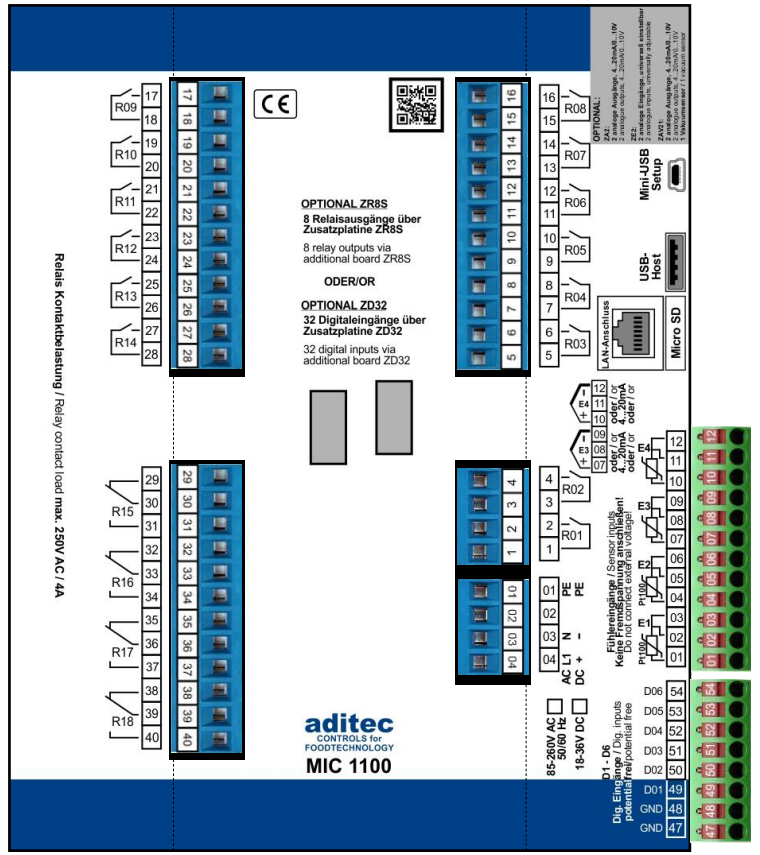
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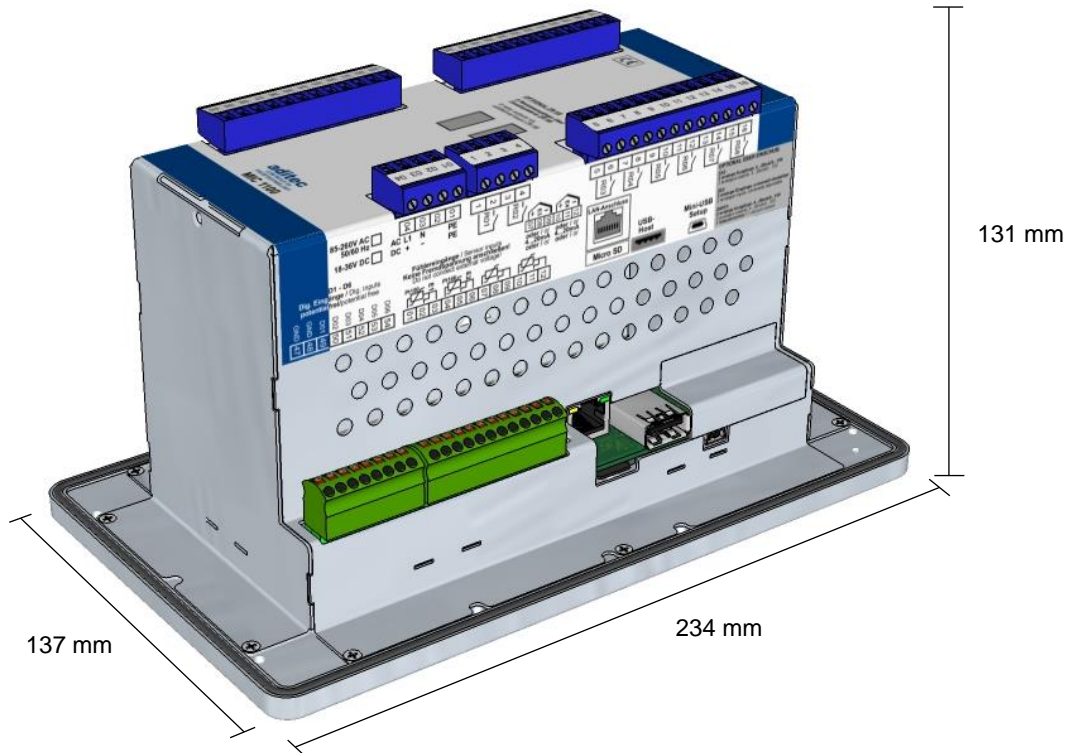
## » CUT-OUT



## » CONNECTION DIAGRAM



## » DIMENSIONS (with terminals)

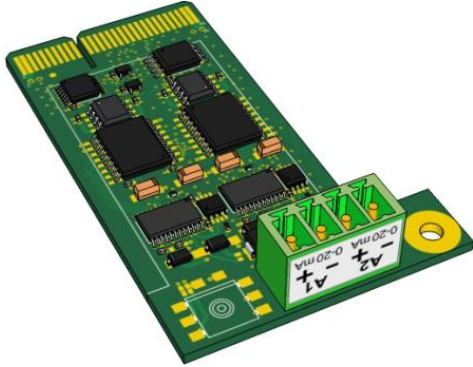


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» ADDITIONAL BOARDS / OPTIONS SUITABLE FOR SUBSEQUENT INSTALLATIONS

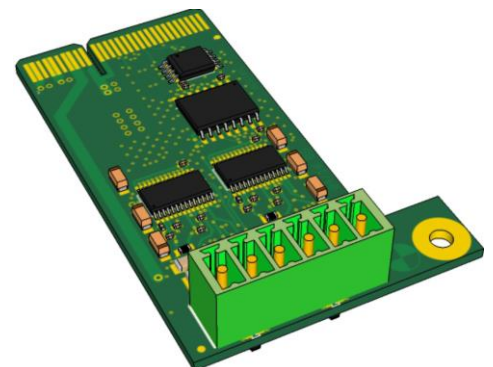
► **ZA2:**  
ADDITIONAL BOARD  
2 ANALOGUE OUTPUTS,  
4...20mA/0...10V



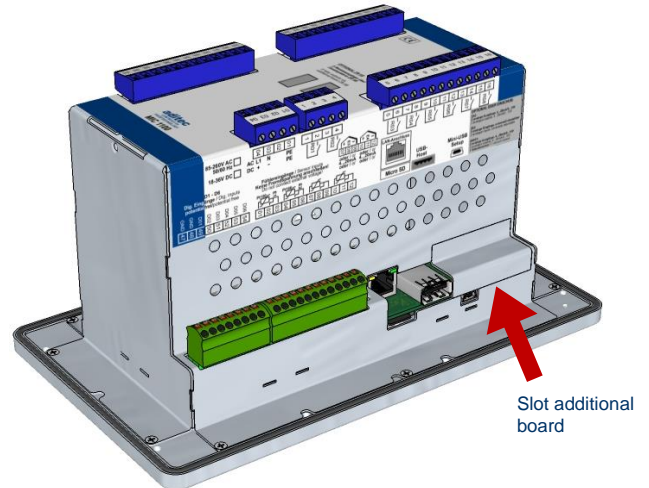
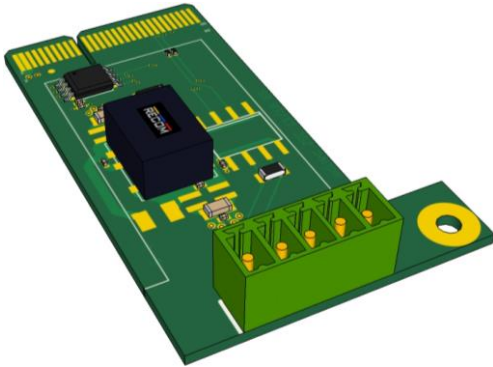
► **ZAV21:**  
ADDITIONAL BOARD  
2 ANALOGUE OUTPUTS  
+ 1 Vacuum sensor  
freely adjustable



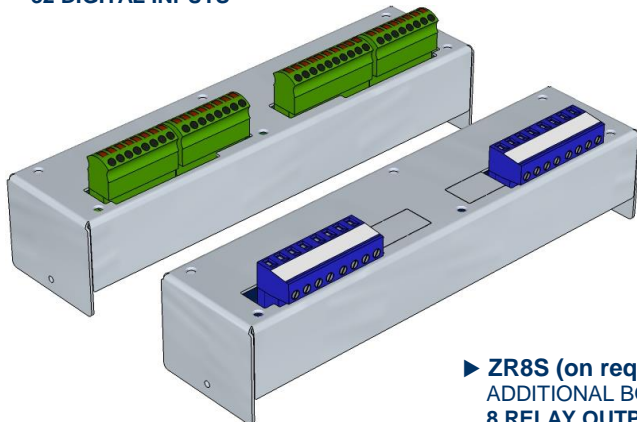
► **ZE2 (on request):**  
ADDITIONAL BORDS  
2 ANALOGUE INPUTS,  
freely adjustable



► **ZSC (on request):**  
ADDITIONAL BOARD  
1x Can Bus (Systembus)



► **ZD32 (on request):**  
ADDITIONAL BOARD  
32 DIGITAL INPUTS



► **ZR8S (on request):**  
ADDITIONAL BOARD  
8 RELAY OUTPUTS

