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 **8 analogue inputs** or **4 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 72 relays, 48 digital inputs**, several analogue in- and outputs with additional modules and an additional board ZSC** (on request)**.**

Optionally it is possible to equip the controller 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 service program – 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 8.0 / 8.1 / 10 / Server 2008 / Server 2012 R2 (64 bit).

» FEATURES

- Brilliant 5" TFT-colour display with touch screen surface in resistive touch technology, suitable for industrial application
- Anodized aluminium 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 and systematic 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
- Auto. increasing the batch number (+1) at program 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.
- Programs 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

» TECHNICAL DATA

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Tel.: +49(0)7136 - 96 122-0 ■ Fax: +49(0)7136 - 96 122-20 ■ Web: www.aditec.net

General data		
Material front	Aluminium frame, naturally anodized	
Housing	Robust stainless-steel housing (1.4016)	DIN standard **/** German Industry Norms
Cooling	Passive (without fan)	
Dimensions	External dimensions: WxHxD: 137 x 234 x 120 mm Depth with terminals: 131 mm	
Mounting dimensions (cut-out):	WxH: 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	85~260 V AC / 50 – 60 Hz	optional 18-36 V DC
Residual tipple	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^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	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^2	
Contrast ratio	400:1	
Touch	Resistive	

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» TECHNICAL DATA

4 x analogue inputs

Sensor		Type	Additional setting	Measuring range	Meas.unit	Accuracy	Ambient temper.-influence	
E1 + E2		Pt100	-	-100… 500 °C (-148… 932 °F)	°C / °F	≤ 0,1%	≤ 100ppm/°C	Adjustable nominal value limit via code **Optional:** Max. 8 additional analogue inputs via additional modules MAE 24 (4 inputs per module) → **a total of 12 analogue inputs**
		TFG80H	-	0…100 % relative humidity	%	≤ 0,1%	≤ 100ppm/°C	
		P1000A	-	Potentiometer: 1000Ω		≤ 0,1%	≤ 100ppm/°C	
⊖	E3 + E4	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	
		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 $R_{Last} \leq 500\ \Omega$	**Optional:** 2 additional analogue outputs via additional board ZA2 and max. 4 additional analogue outputs via additional modules MAE24 (2 outputs per module) → **a total of 6 outputs**
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	**Optional:** 10 digital inputs via additional module MD12 → **a total of 48 digital inputs** D7 - D38 pre-reserved for ZD32 D39 – D48 → MD12
18x Relay outputs		
R1..R18	Potential free contacts switching capacity (250V AC, 4A), 4 change-over contacts and 14 closers	**Optional:** max. 46 additional relay outputs via additional module MR6 (6 outputs per module) → **a total of 72 outputs** R19 – R26 virtually, pre-reserved for ZR8S R27 – R72 → modules
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 **ZSC** (on request)
Memory	**1x** MicroSD Card Slot	For MicroSD Card to 32GB
Galvanic isolation		
Mains input 85~264VAC/120~370VDC	4 kVAC/1Min	**Optional:** 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 - LAN - USB Host - USB MiniUSB Serial Port	 1,5 kV --- ---	

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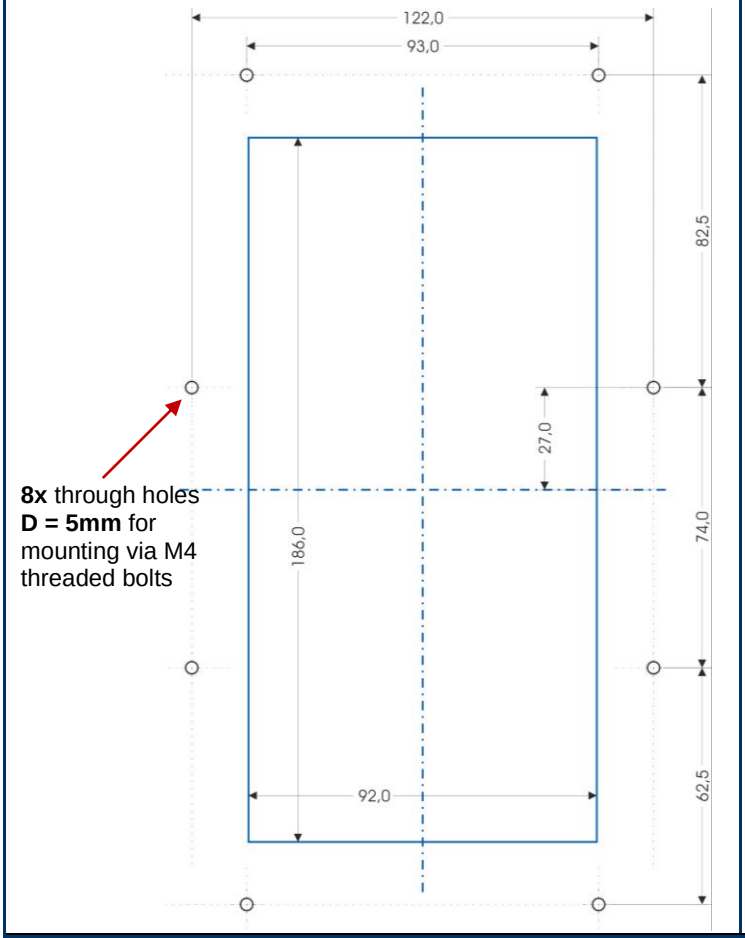
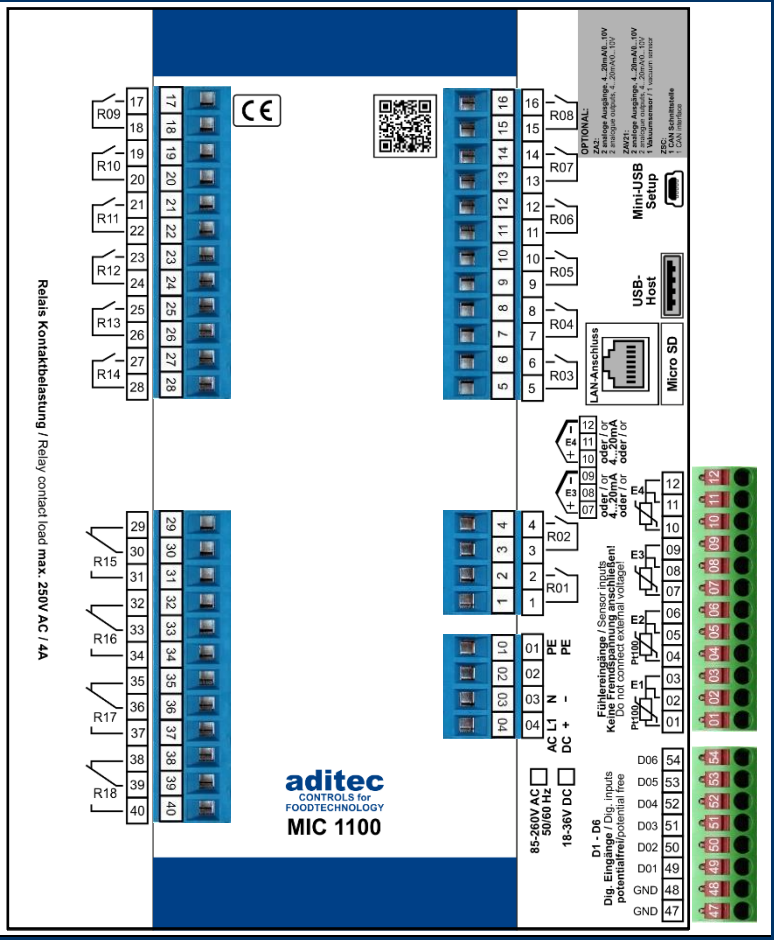
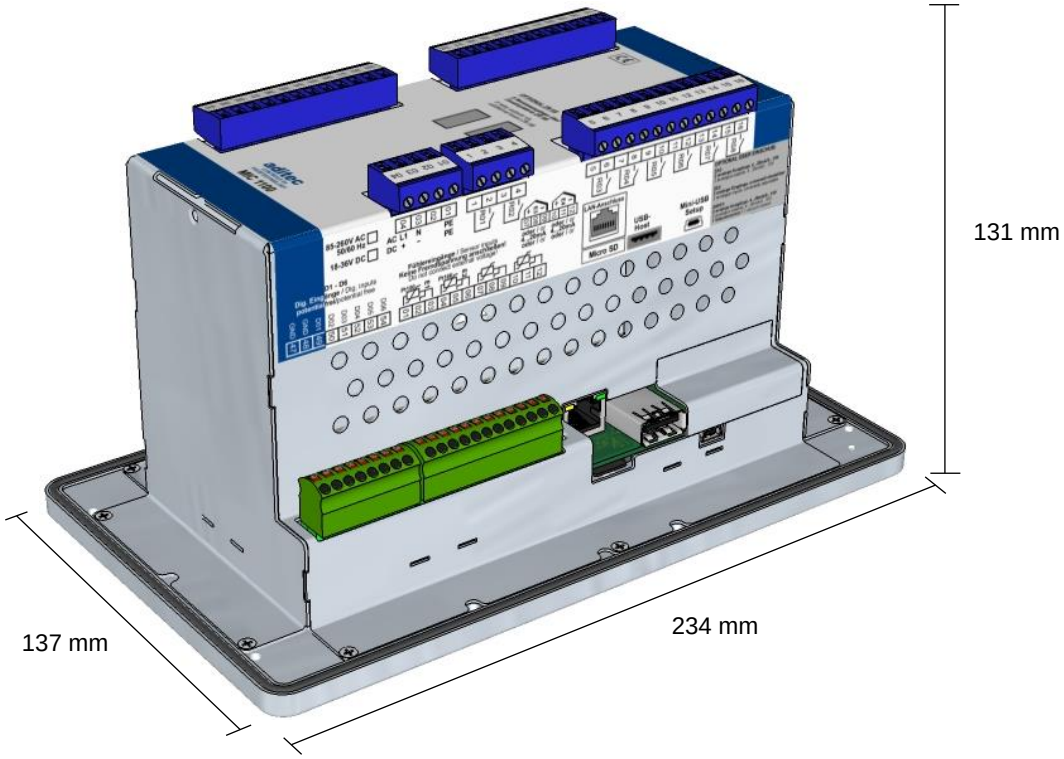
» CUT-OUT



» CONNECTION DIAGRAM



» DIMENSIONS (with terminals)



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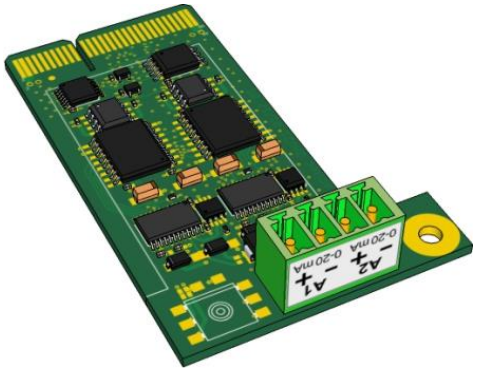
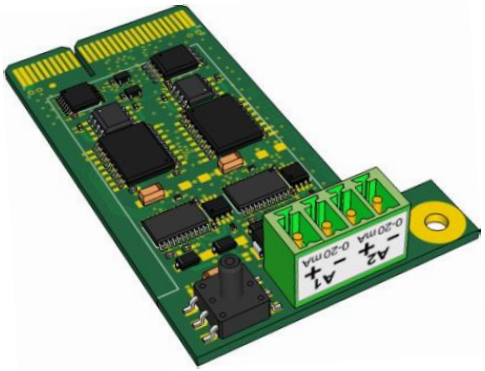
» ADDITIONAL BOARDS / OPTIONS suitable for subsequent installations

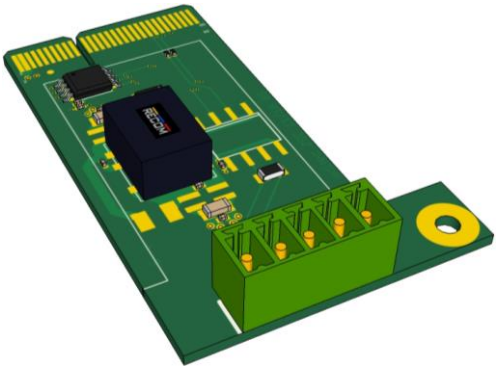
▶ **ZA2:**
ADDITIONAL BOARD
2 ANALOGUE OUTPUTS,
4…20mA/0…10V

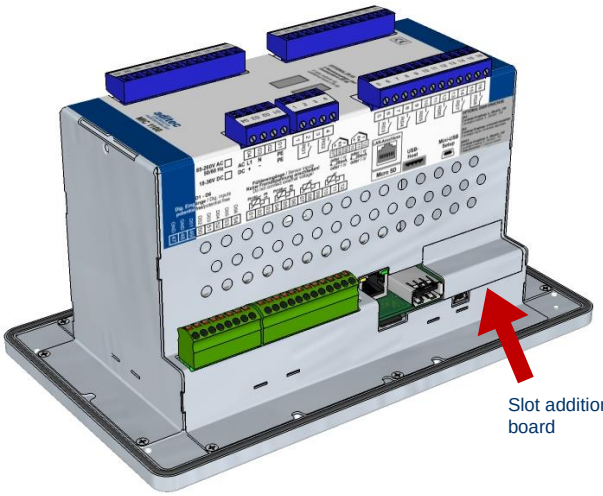


▶ **ZAV21:**
ADDITIONAL BOARD
2 ANALOGUE OUTPUTS
+ 1 Vacuum sensor
freely adjustable



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





Slot additional board

» CAN MODULES / OPTIONS suitable for subsequent expansion via ZSC additional board

▶ **MR 6**

▶ **MAE 24**

▶ **MD 12**

CE

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