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**Steam cooker
with
„RHEA“
input electronics**

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1. ESD=electrostatic discharge

As the single electronic interfaces are not protected internally against static electricity and are partially open, you must pay attention to that, in case of a repair, there will be a potential compensation via the housing of the appliance (touch it) in order to neutralize a possible charging and to prevent a damaging of the affected electronic interface.

You also have to be careful with those electronics delivered as spare parts, which have to be put out of the ESD protective package only after a potential compensation (discharge of possible static electricity).

If a potential compensation with an existing static electricity is not executed, it does not mean that the electronic is damaged directly. Consequential damages may result due to the damaging of internal structures which arise only in case of load through temperature and current.

Endangered are all assembly groups which are provided with control entries, wire paths lying open and free-accessible processors.

2. Software specifications, functions

2.1 Illustration of the input electronics (UI) RHEA

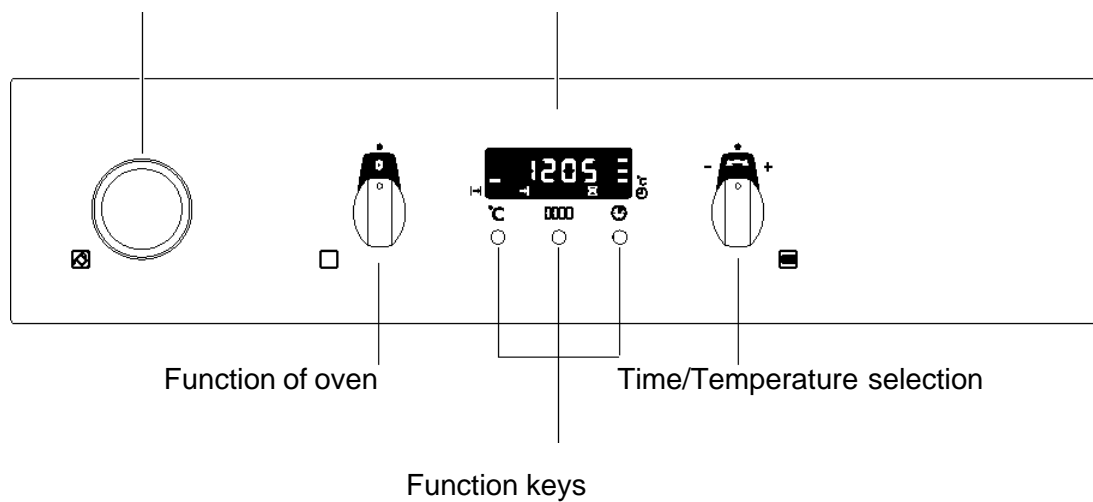


2.2 Button / and display layouts of all appliance groups, countries and brand

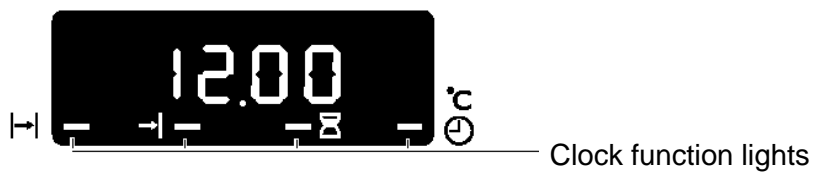
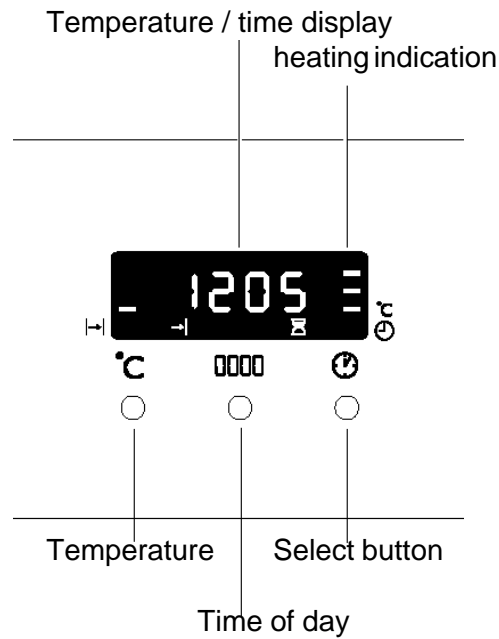
Control Panel (sample illustration)

Water drawer

Temperature / time display



Displays and Symbols (sample illustration)



- | | | | |
|---|-------------|---|--|
| ← | Time | - | To set how long the baking oven will be turned on. |
| → | End | - | To set the time when the oven will be turned off again. |
| ⌘ | Short Time | - | To set the short time. An audible signal sounds when the time has expired.
This function has no effect on the operation of the baking oven. |
| ⌚ | Time of day | - | To set, change, or display the time of day. |

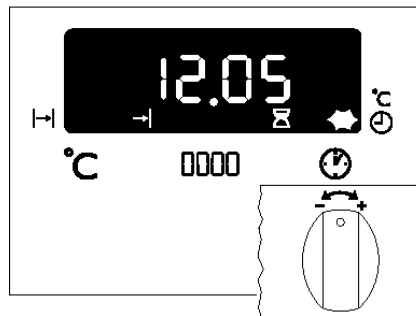
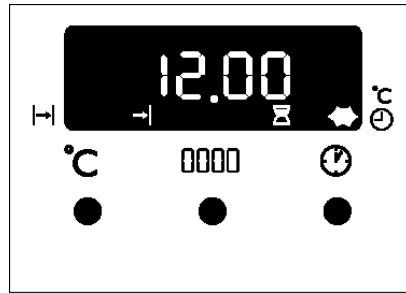
2.3 Main features of operation

2.3.1 Clock setting following network reset

The oven functions only with a set time.

The "Time of day" function light blinks automatically once the oven is connected to the electrical supply and after a power failure.

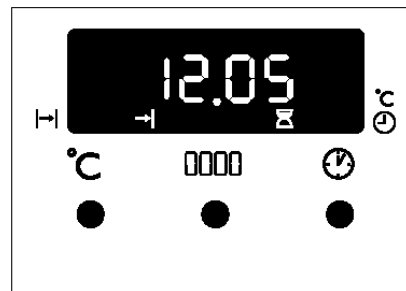
1. To change the time of day once it has been set, press the "Select" button repeatedly until the "Time of Day" function light blinks.
2. You set the current time of day with the +/- button.



After about 5 seconds the light stops blinking and the clock shows the new time of day setting.

The appliance is ready for operation.

The time of day can only be changed when the child-proof function is disabled, no "Short Time", "Time" or "End" clock functions are enabled, and no baking oven function is selected.



2.3.2 Child-proof lock

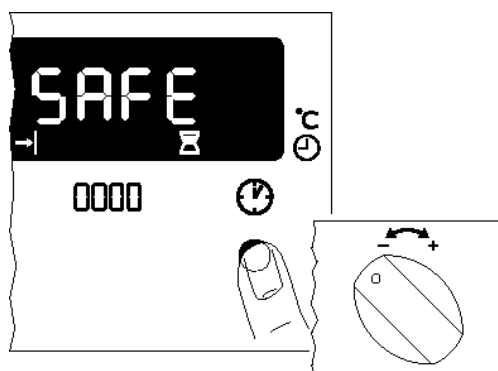
The baking oven is equipped with a child-proof function. The baking oven cannot be turned on once the child-proof function is enabled.

To enable the child-proof function, you must first make sure no baking oven functions are selected.

Activate child-proof lock

1. Turn the "+/-" switch to the left and hold it there.
2. Now press the "Select" button at the same time until "SAFE" is displayed.

The child-proof function is now enabled.



Child safety function switch off

1. Turn the "+/-" switch to the right and hold it there.
2. Now press the "Select" button at the same time until "SAFE" is not displayed.

The child-proof function is now disabled and the baking oven is ready for operation.

3. Functions of appliance

3.1 Oven functions, capacities and small consumer - appliance-specific Functional summary, sample illustration

FUNCTIONS	Heating Elements [Watt]							Small Loads [Watt]									maximal power [Watt]	maximal current [Ampere]			
	bottom element 1000	ring element 2400	steam element 1800	cooking fan 40	cooling fan LOW 25	cooling fan HIGH	lamp back wall 40	exhaust actuator 10	waste air actuator 10	REL9	REL4	REL6	REL11	REL13	REL14	REL15			REL12	REL10	
1 OVEN FUNCTIONS	1 lamp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	0,2	
	2 bottom+steam+fan	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2915	12,7	
	3 ring+bottom+steam+fan (25/75)	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3515	15,3	
	4 ring+fan	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2505	10,9	
	5 ring+bottom+fan	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3505	15,2	
	6 fan+hamp (30°C)	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	0,3	
	7 bottom	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1065	4,6	
2 BOOST FUNCTIONS	no. item	def_ost	Boost																		
3 STEAM FUNCTIONS	1 ring+fan	YES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2505	10,9	
	1 bottom+steam+fan	phases	def_ost	min_ost	max_ost	def_dur															
		phase 1	96	96	96	-															
		phase 2	96	96	96	-															
	2 ring+bottom+steam+fan (25/75)	phases	def_ost	min_ost	max_ost	def_dur															
		phase 1	180	50	230	-															
		phase 2	180	50	230	-															

Steam cooking - detailed explanation

The information ... (50/50) and ... (25/75) with regard to the steaming function are time-related information at a 42 sec. Interval.

Steaming function 50/50

Ring and steam generator, each being active for 50% of the set time. 21 sec. Each at intervals.

Steaming function 25/75

Ring active 25% of the set time and steam generator active 75% of the set time. Each alternately, ring 10.5 sec. And steam generator 31.5 sec.

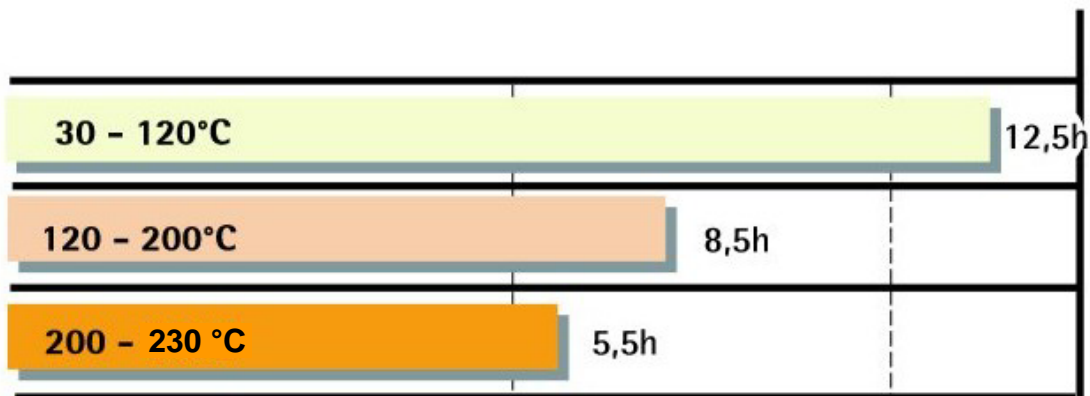
3.2 Legend for the function summary

EN - Legendary
Boost functions
Bottom
Cleaning functions
Cooling fan
Cooking fan
Def_dur
Def_ost
Exhaust actuator
Grill
Heating elements
High
Lamp back wall
Lamp side wall
Low
LTC
Maximal current (Ampere)
Maximal power (Watt)
Max_ost
Min_ost
More description
No
Oven functions
Phase
ResH.
Ring
Slow cook functions
Small loads
Special funtions
Steam element
Steam functions
REL ...
Top
Waste air actuator
Watt

3.3 Safety function safety cutoff of oven

If the oven is not switched off after a specific period of time or if the temperature is not changed, then it switches off automatically.

The oven switches off at an oven temperature of:



Putting into operation after a safety cutoff:

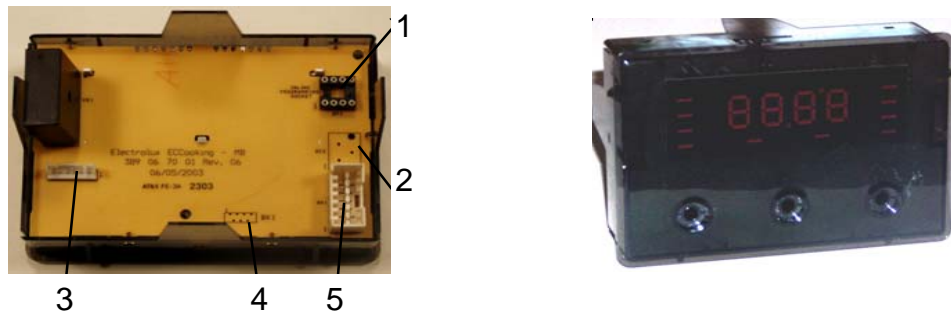
Turn the baking oven completely off. It can be turned on again after turning it completely off.

Note: The safety cutoff is cancelled, when the clock function „duration“ or „end“ has been set.

4. Functional parts - Component data, installation situation, dismantling

4.1 Input electronic (UI) RHEA

The RHEA input electronics consist primarily of an LED module and a microprocessor, along with diverse semi-conductor components. This controls the electronic control unit using a personalized program. The desired functions are activated using two or three push-buttons.



General Depiction - RHEA input electronics

1. Programming connection
2. Power electronics OVC2000 connection
3. Power electronics SOEC/OVC1000 connection
4. Sensor button connection (optional)
5. „Rotary/Shuttle“ input module connection

This figure shows the RHEA input electronics (UI) after installation with the Rotary input module on the right and the Shuttle input module on the left. The upper part of the housing has been removed.



The switch plate is held on the plate support by double-sided silicon adhesive tape. To remove the RHEA UI, it is necessary to detach it using a sharp knife.



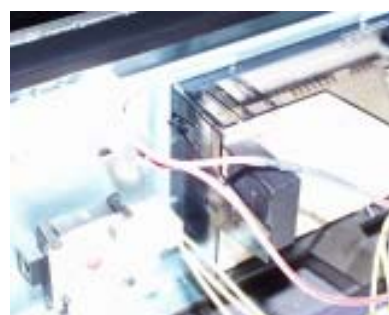
Now pull the two toggle switches off the axes of the input module and the three pushbuttons out of the input electronics. The handle of the water tank is fastened using a bayonet lock. Turning the lock 45° in the counterclockwise direction opens the lock.



The switch plate can now be removed.



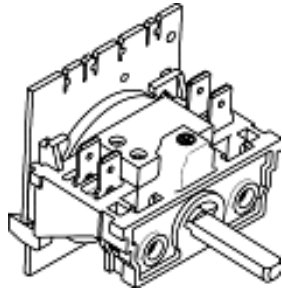
The RHEA UI clicks into the plate support due to the four tabs. Two tabs on the bottom and one each on the right and left hold the input electronics in place.



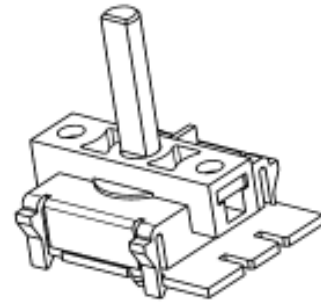
After releasing the four tabs, the input electronics can be removed from the unit. Now you just need to unplug the two group plugs.



Input module oven



Set point device



Input module oven:

The desired heating module is selected by means of this module by means of turning movements in serrated 40° steps. Each 40° step means a changed resistance level at the printed circuit contacts (see automatic logic diagram). The signals of the input module received by the User Interface are communicated to the power board by data transmission.

Set point device:

The temperature needed or the desired time are set by means of this component, according to the function set at the RHEA User Interface. These parameters can be changed from the basic position, by a 30° turn to the right and holding the turning grip in this positive position (increasing) or by a 30° turn to the left and holding the turning grip in this negative position (decreasing). If the predetermined level transducer is released after the level needed and wished has been reached, it will spring back to the initial position. The signals received will be accepted and processed by the RHEA User Interface.



To remove these two parts, it is necessary to remove the switch plate (see page xx) since it is connected to the plate support by two screws. These fastening screws can be accessed and removed once the dials have been removed.

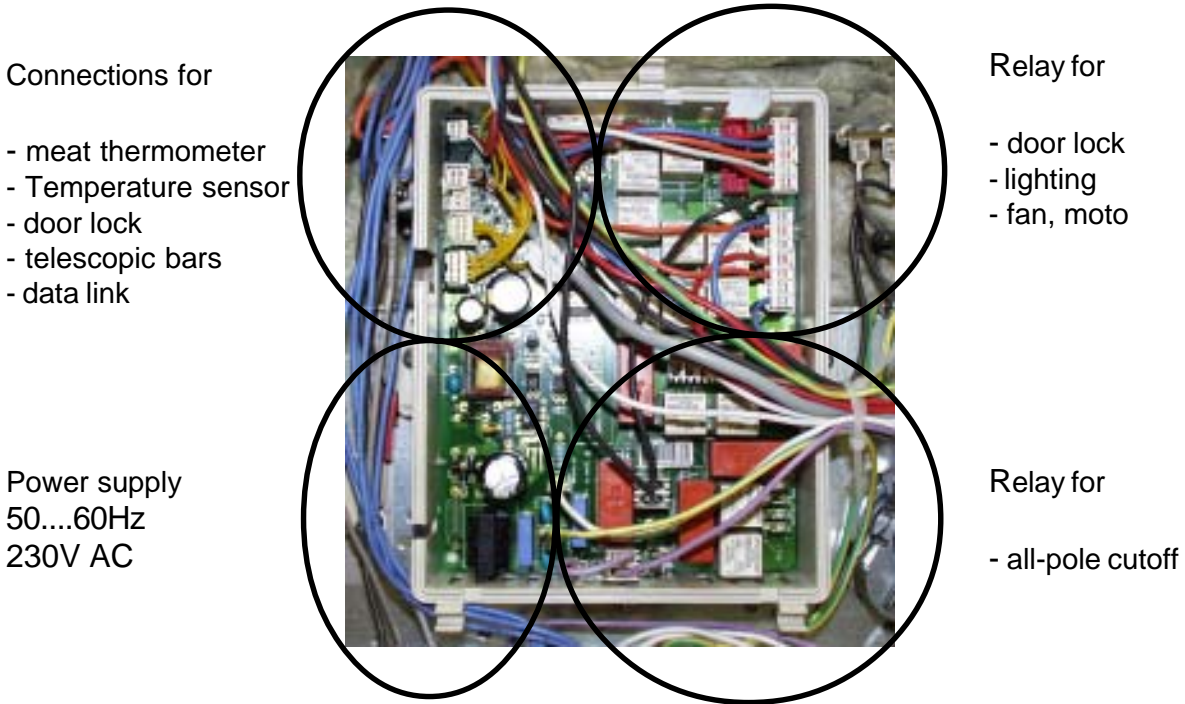


Fig.: Powerboard OVC2000 wired in the appliance

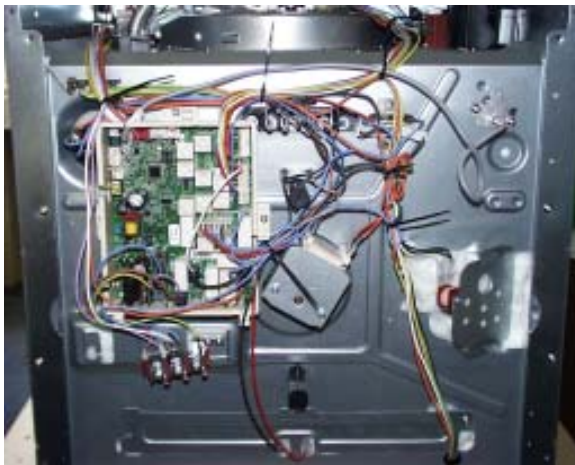


Fig.: assembly situation



Fig.: Spare part OVC2000

The power electronics are located on the rear side of the appliance and are accessible after removing the housing rear panel. The power board is installed in a so-called „functions box“ made of plastic. These two components, power electronics and plastic box, are also a replacement part unit (see III.)

Please refer to Chapter 7 for connection designations and possible measuring points.

4.1.3 Temperatursensor PT500

The temperature in the baking oven is measured by a temperature sensor (type PT 500) for appliances with control board. The sensor is provided at the rear of the appliance. It is used to transmit to the electronic systems the values for:

- cyclic heating the radiators until the selected temperature is reached;
- switch off the radiators in case of overheating of defective sensor;
- switching ON/OFF the cooling fan.

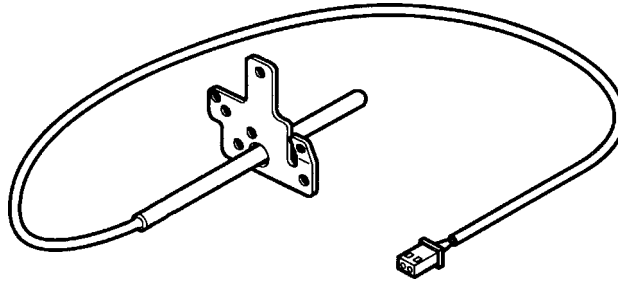


Fig. Temperature sensor

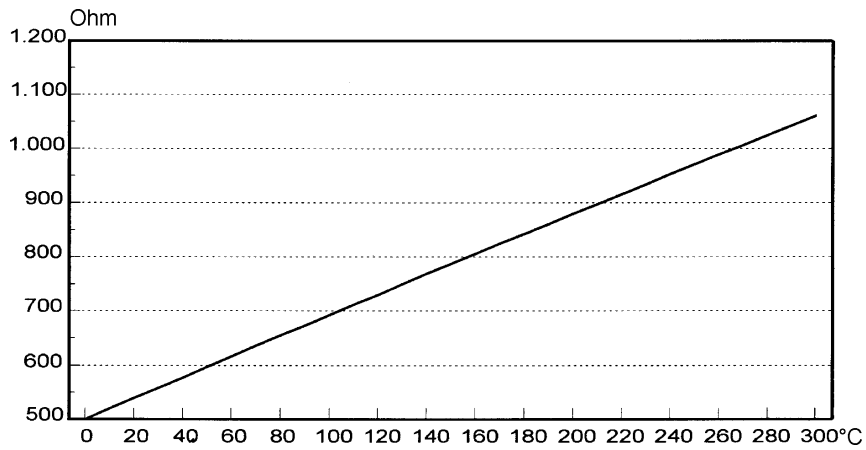


Fig. Electrical resistance of sensor depending on the ambient temperature

4.2 Thermal trigger (actuators) with steam thermostat

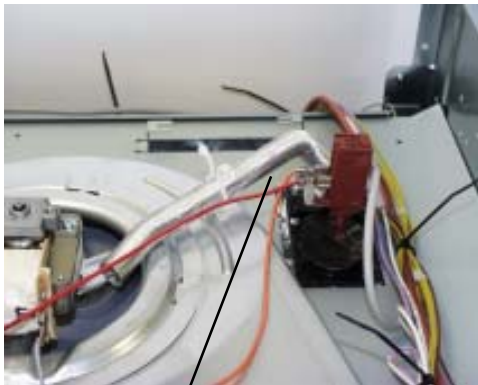
The actuators serve the control of steam and vapour. Depending on the selected oven function, the respective „valves“ are open or closed. The nominal lifting distance is 6 mm with both actuators. Please conclude from chapter 3 which actuator is when active.



assembly situation thermal trigger



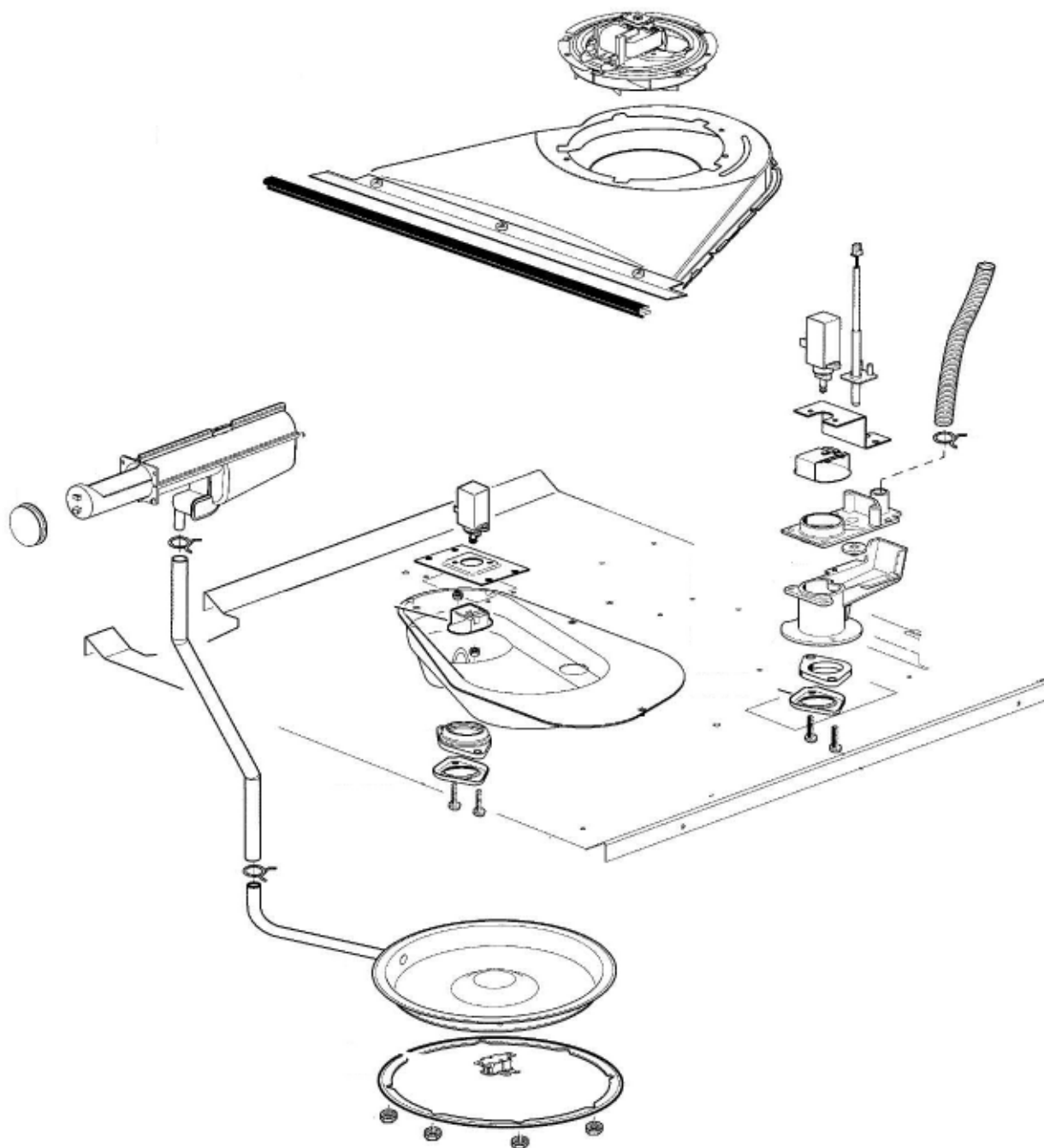
thermal trigger steaming



Excess pressure thermal trigger with stem thermostat for temperature control of the oven function steaming (oven function 11).



4.3 Detailed presentation of the steam system



4.4 The steam generator



Fig. 1



Fig. 2

The steam generator is situated in the centre of the oven floor (fig. 1). To remove the steam generator, the appliance must be laid onto the side panel. There is a cover on the housing floor (service opening, fig. 2), which is screwed in position with six screws. These screws must be loosened in order to access the steam generator and the two temperature sensors.



Fig. 3



Fig. 4



Fig. 5

The steam generator/temperature controller 120/170°C unit (figs. 3/4) is held with eight hexagonal nuts (fig. 5) which must be loosened before the component can be removed in the direction of the appliance interior.

Temperature controller 120°C -
Temperature controller 170°C -

Signal tone lack of water (f3.2 in the circuit diagram)
Deactivation steam generator (f3.1 in the circuit diagram)

Heating element performance
Water capacity

1800W
0,7l

5. Technical equipment

5.1 Fan after-running

The cooling fan switches on automatically when putting the appliance into operation. First it is in operation to keep cool the appliance surfaces. After the oven was switched off, the fan continues running to cool the appliance and then switches off automatically at a centre of gravity temperature of the muffle of approx. 120°C-130°C. The post-operative ventilation is controlled via the electronics.

Note: - for wiring diagram see chapter 7

5.2 Temperature safety device



temperature safety device

The double temperature fuse which deactivates all of the poles in case of overheating is situated next to the OVC2000 powerboard. The measured temperature value upon deactivation amounts to 220°C (f2.1 and f2.2 in the circuit diagram).

6. Fault diagnosis/ What to do if ...?

6.1 Alarmmanagement (Faultcodes)

Alarmmanagement Powerboards	OVC2000
------------------------------------	----------------

Display	Description of fault	Fault repair
F0	Internal error	replace power electronics
F1	door cannot be locked	Test door locking system
F2	door cannot be unlocked	Test door locking system and unlocking thermostat f11
F3	software error	Execute network reset by disconnecting the appliance from the electricity supply and restarting
F94	Temperature sensor alarm - resulting in F4	Test temperature sensor, replace if necessary
F4	Temperature sensor without contact or short circuit	Test temperature sensor, replace if necessary
F5	Clotted heating element relay contacts on the power electronics	Replace power electronics
F95	Temperature alarm at power electronics - resulting in F6	Test built-in situation of the ventilation channel and the function of the cooling fan
F96	Temperature alarm at power electronics - resulting in F6	Test built-in situation of the ventilation channel and the function of the cooling fan
F6	Power electronics temperature too high	Test built-in situation of the ventilation channel and the function of the cooling fan
F7	Faulty electrical connection (only in appliances with Prisma power electronics)	Correctly connect the appliance and re-start
F8	No connection between power electronics and input electronics	Check connection line - replace electronic systems if necessary
F9	Micro processor resets itself independently (= Reset)	Execute network reset by disconnecting the appliance from the electricity supply and restarting
F10	Triac on power electronics defect	Activate Main Button, select an operation modus with hot air, wait for cooling ventilation start, replace power electronics again in the event of an error report following approximately 20 seconds
F11	Meat skewer sensor without contact or short-circuited	Check meat thermometer, also check bushing and wiring if necessary; if all this OK replace power electronics
F91	Temperature sensor alarm for steam generator - resulting in F12	Test temperature sensor, replace if necessary
F12	Temperature sensor of steam generator without contact or short-circuited	Test temperature sensor, replace if necessary
F13	Internal electronics error	Replace power electronics
F14	software error	Replace input electronics
F15	Internal electronics error	Replace input electronics
F16	Combined alarm Pyrolytic cleaning/cooking zone	Replace input electronics

6.2 Measuring the temperature sensor

If a failure at the temperature sensor is assumed, the resistance can be checked by means of an ohmmeter.

The resistance of the temperature sensor should be 500 – 600 ohms at room temperature.

Make sure to measure the insulation resistance between the metallic housing and each connection terminal.

The resistance should be higher than 2 MOhms.

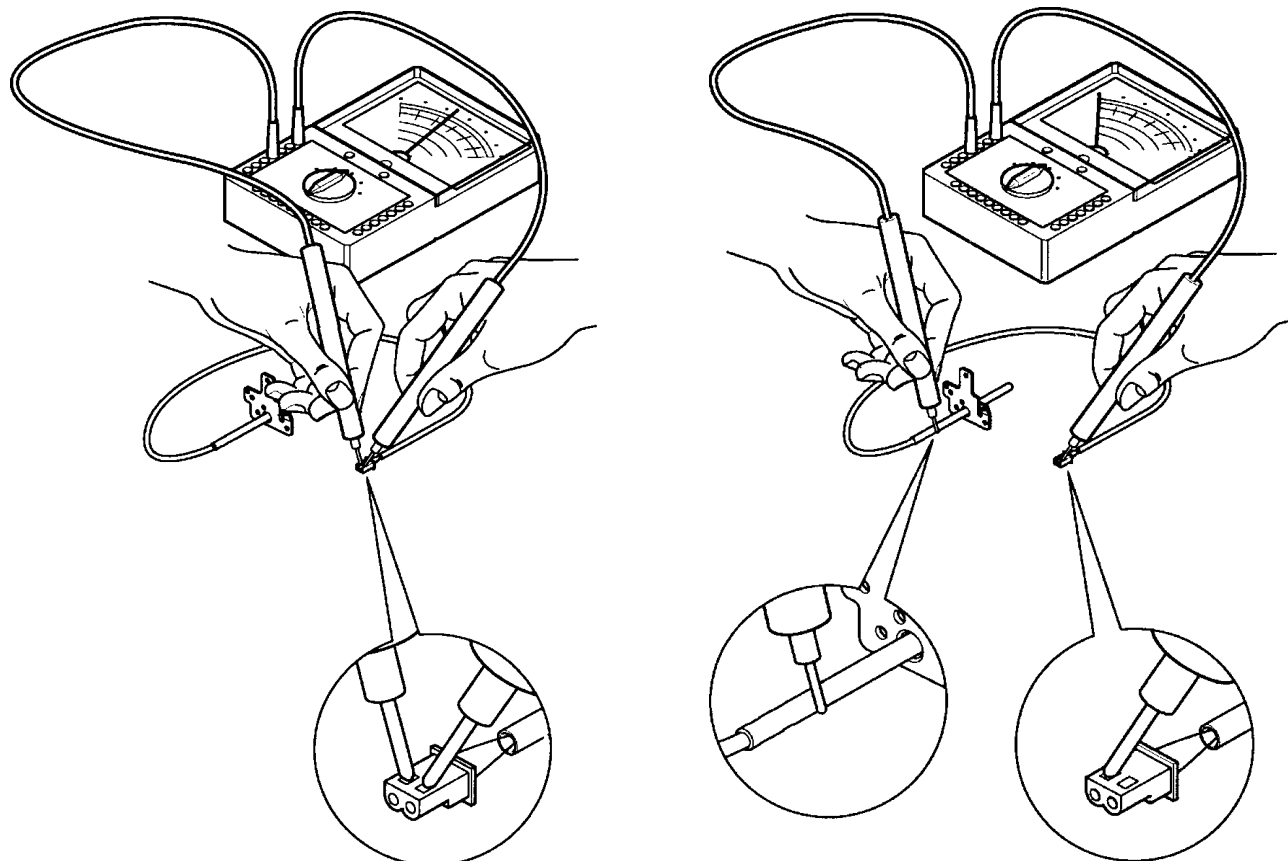


Abb. Measuring the temperature sensor

6.3 Demo mode

Not provided

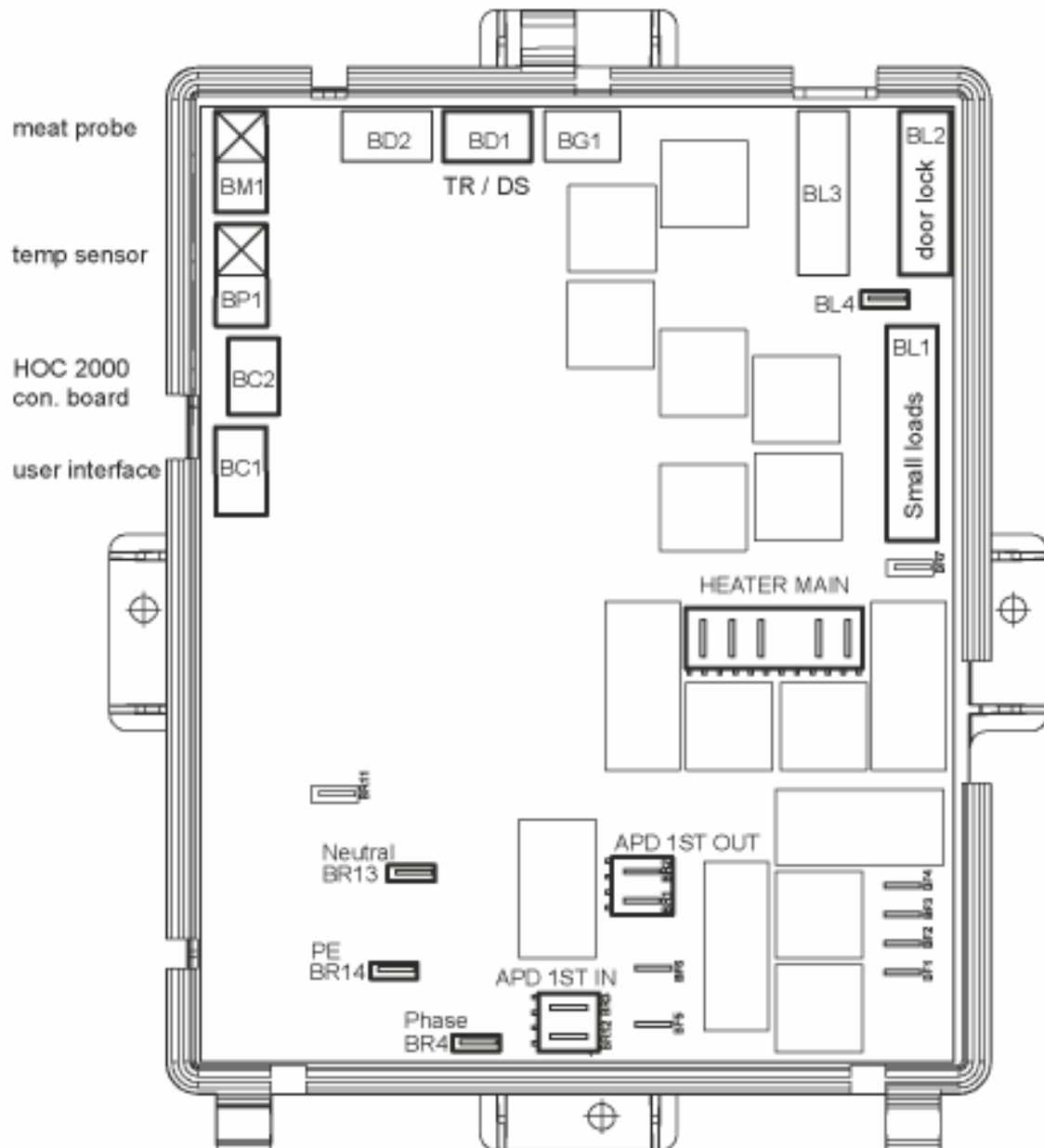
6.4 Factory test / door lock test

Not provided

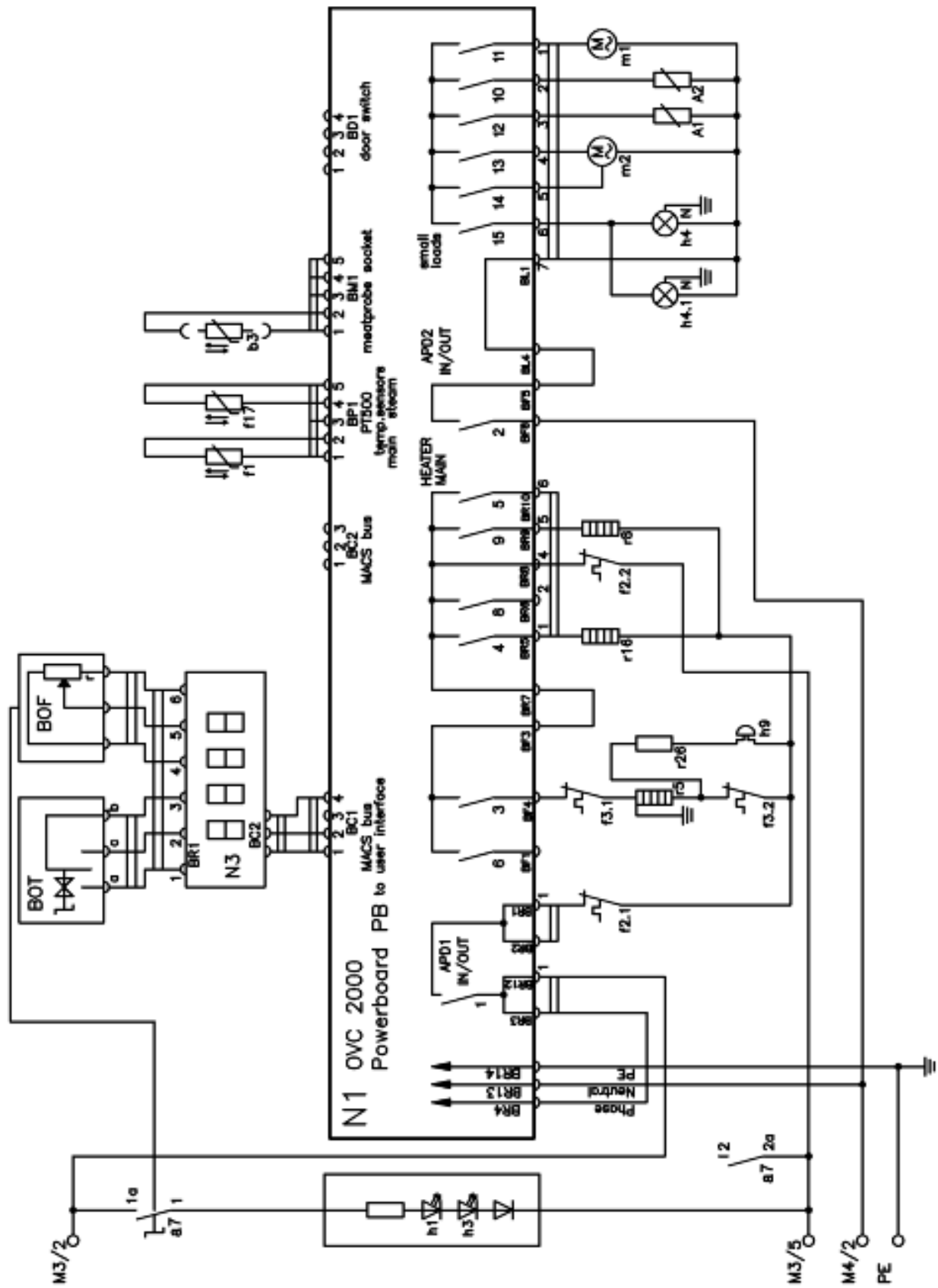
7. Wiring diagram / measuring points

7.1 Connection Point Overview

OVC 2000



7.2 Example circuit diagram steam cooker with OVC 2000



7.3 Operative Equipment Overview

Kennzeichen	Description
a1	Switch 7-step front left
A1	actuator exhaust
a15	Touch electronic switch warming zone
a2	Switch 7-step rear left
A2	Actuator desteam
a3	Switch 7-step rear right
a31	energy regulator front left
a32	energy regulator rear left
a33	energy regulator rear right
a34	energy regulator front right
a4	switch 7-step front right
a61	touch electronic switch front left
a62	touch electronic switch rear left
a7	Heating mode selector main oven
a7.1	Heating mode selector top oven
a73	touch electronic switch rear right
a8	LTC(Low Temp. Cooking) switch
a84	touch electronic switch front right
b3	Socket meatprobe
BOF	mode selector function
BOT	mode selector temperature
c4	interference filter
D	hob connector 12-pol.
DS	door switch
E	hob connector 8-pol.
e1	Door look pyro
e11	Distributor plate pot detection
F	hob connector 21pol
f1	Main oven thermostat
f1.1	Top oven thermostat
f11	Thermostat unlock pyro
f12	Thermostat cooling fan delay
f15	2. safety temp. limiter oven
f16	thermostat overheating warning

Kennzeichen	Description
f19	rack thermostat
f2	safety temp. limiter main oven
f2.1	safety temp. limiter top oven
f21	safety temp. limiter grill
f22	safety temp. limiter fryer
f31	residual contact front left
f32	residual contact rear left
f33	residual contact rear right
f34	residual contact front right
f5	Thermostat cooling fan delay
f6	Thermostat fast run cooling fan pyro
f7	sensor to magnetron
f8	LTC(Low Temp. Cooking) thermostat
G5	magnetron
h1	Lamp working
h1.1	lamp working top oven
h1.4	lamp working hot plate front left
h1.5	lamp working hot plate rear left
h1.6	lamp working hot plate rear right
h1.7	lamp working hot plate front right
h10	analog timer
h11	electronic timer
h12	6-push electronic timer
h20	timer primary code hob
h3	lamp heating main oven
h3.1	lamp heating top oven
h30	residual lamp
h4	oven lamp main oven

Kennzeichen	Description
h4.1	oven lamp side main oven
h4.6	lamp halogen
h40	display board
h5	oven lamp top oven
h5.1	oven lamp side top oven
h52	display oven
h7	meatprobe display
h9	lamp overheating
K	clutch
k1	LTC(Low Temp. Cooking) relay
KS	switch child safety
KS1	rotary hot plate front left
KS2	rotary hot plate rear left
KS3	rotary hot plate rear right
KS4	rotary hot plate front right
M1	Hob connector 14-pol. 1+2
m1	fan hot air
m12	turnspit motor
m13	Ignition coil gas
M2	Hob connector 14-pol. 3+4
m2	fan cooling
m20	cooling fan, L3
M3	Connector 11-pol.
m3	transformer halogen lamp
M4	Connector 7-pol.
m4	transformer timer
M5	Connector 3-pol.
m5	transformer electronic
m6	motor stirrer
m8	transformer high voltage
N1	electronic powerboard
N2	modul of induction
N3	electronic board Rhea
N4	connector board
N5	Power supply unit lightbar
PE/1b	ground point component plate

Kennzeichen	Description
PE3	ground point front frame left
PE4	ground point front frame right
Q1	quick start module top oven
r11	fat and smell
r12	thermal switch
r14	main oven grill heating element
r14.1	top oven grill heating element
r15	warming zone
r16	rear
r19	rack heating
r20	preresistor cooling fan
r21	heater grill
r22	heater fryer
r27	preresistor oven lamp
r27.1	preresistor oven lamp side
r31	cooking plate front left
r32	cooking plate rear left
r33	cooking plate rear right
r34	cooking plate front right
r35	cooking plate middle
r6	top heating/grill combination
r7	main oven top heating element
r7.1	top oven top heating element
r8	main oven bottom heating element
r8.1	top oven bottom heating element
s1	sensor pot detection front left
s11	micro switch gas to electro
s12	micro switch grill to fryer
s13	micro switch grill socket
s14	micro switch sensor
s19	rack switch
s2	sensor pot detection rear left
s21	sensor grill
s22	sensor fryer
s23	Sensor wok (middle)
s3	sensor pot detection rear right
s31	Ignition switch front left
s32	Ignition switch rear left
s33	Ignition switch rear right
s34	Ignition switch front right
s4	sensor pot detection front right
TR	telescopic runner switch
X1	main terminal
X10	tandem pin shells 6-pol.
X11	tandem pin shells 8-pol.
X12	connector hob
x20	frame connector, L3

Changes

Pages 20, Chapter 6.1 changed