

**Built-in hobs
Induction
„TEIS“**

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Inhaltsverzeichnis

1.	ESD=electrostatic discharge	3
2.	Software specifications, Functions	4
2.1	Sample illustration: Induction hob	4
2.2	Control panel	4
2.3	Symbol,display and keys explanation	5
2.3.1	Touch control sensor fields	5
2.3.2	Displays	5
3.	Functions of appliance	6
3.1	Basic functions/Child safety/Power-function	6
3.2	Safety cutoff	7
4.	Functional parts - Component data, installation situation,	8
	dismantling	8
4.1	General view	8
4.2	Contact switch and input electronics (UI)	9
4.3	Induction coil	10
4.4	The induction module	11
5.	Alarm Symptoms	12
5.1	Appliance not functioning at all, cannot be switched on	12
5.2	Individual cooking zones do not work (partially) or work incorrectly or cannot be used	13
5.3	Alarm message „E“	14
5.4	Other Alarmsymptoms	15
5.5	Connection guideline	16
5.6	Display	17
5.7	Inductions module test	17
5.8	Pot identification information	18
5.9	Touch Control Cooking Hobs Information	19
5.10	Demo mode / Self test (Service mode) / Alarm Menu	20
6.	Wiring diagrams	21
6.1	Example-slotted plan	21
6.2	Example-circuit diagram	22

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.

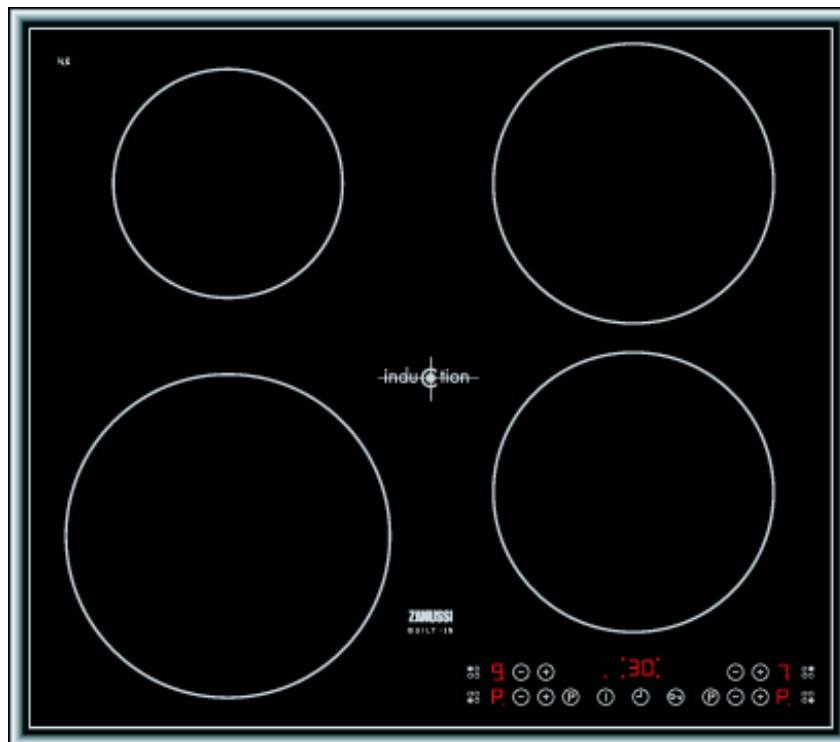
You also have to be careful with those electronics delivered as spare parts, which have to be put out of the ESD protective package only after a potential compensation (discharge of possible static electricity).

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.

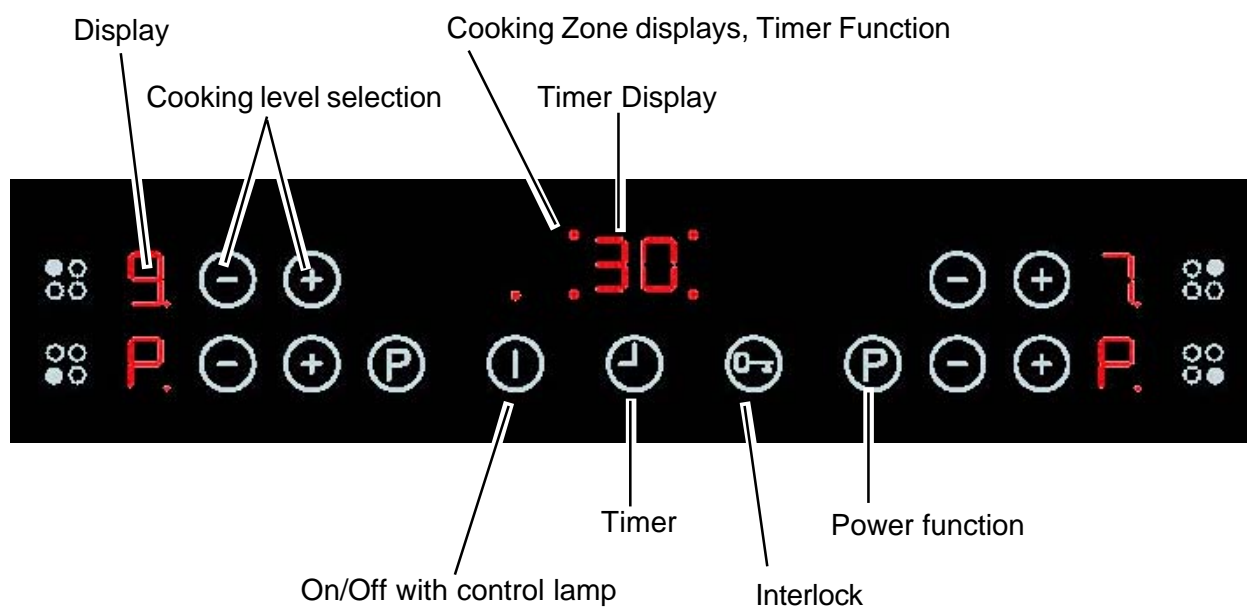
2. Software specifications, Functions

2.1 Sample illustration: Induction hob









2.2 Control panel

The symbol of the Touch control sensor field depend on the various brands, however their functions are the same.


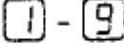








2.3 Symbol, display and keys explanation

2.3.1 Touch control sensor fields

	<u>Sensor field</u>	<u>Function</u>
	On/Off	Appliance On and Off connection
	increase settings	Increase cooking level/time
	reduce settings	Reduce cooking level/time
	Timer	Timer choice
	Interlock	Control panel lock/unlock
	Power	Power function Switch on/off

2.3.2 Displays

	<u>Display</u>	<u>Description</u>
		Cooking area is switched off
	Cooking levels	Cooking levels are set
	Fault	Function failure occurs
	Pot detection	Cooking tablewear is unsuitable or too small and/or it is not put on.
	Residual heat	Cooking area is still warm
	Child safety function	Interlock/Child safety is on
	Power	Power-function is switched off
	Safety cutoff	Safety cutoff is active

3. Functions of appliance

3.1 Basic functions/Child safety/Power-function

Control panel

Display/signal

Switch on/off the appliance

Switch on	(I) Touch for 2 seconds	"0"/"H", Control lamp lights up
Switch off	(I) Touch for 1 second	"H"/none, Control lamp turns off

After switching on, a cooking level or a function has to be set within 10 seconds, otherwise the appliance switches off automatically.

Set cooking level

Boost	(+) Touch	"1" to "9"/"P"
Minimise	(-) Touch	"9" to "0"
Switch off	Touch (+) and (-) simultaneously	"0"

Locked/unlocked control panel

Switch on	Touch (lock)	"L" (for 3 seconds)
Switch off	Touch (lock)	Pre-set cooking level

When switching off the appliance, the lock will switch off automatically.

Switch on the childproof lock

Step 1	(I) Switch on the appliance	"0"
Step 2	Touch (lock) until the signal sounds	Acoustic signal
Step 3	(+) Touch	"L"

Appliance switches off. The childproof lock is switched on.

Override the childproof lock

Step 1	(I) Switch on the appliance	"L"
Step 2	Touch (+) and (-) simultaneously	"0"/Acoustic signal

Appliance can be used regularly till the next deactivation of the appliance. The childproof lock can therewith be switched off for an isolated cooking act; afterwards it remains active.

Switch off the childproof lock

Step 1	(I) Switch on the apparat	"L"
Step 2	Touch (lock) until the signal sounds	Acoustic signal
Step 3	(-) Touch	

Appliance switches off. The childproof lock is switched off.

Switch on/off power function

The power function (P) provides additional capacity for the leading induction cooking zone, e.g. to bring water to boil quickly. The power function will be activated at the cooking zone, u front and to the left, in 8 minutes, and at the cooking zone, up front and to the right, in 5 minutes. After this the induction, the cooking zone switches automatically back to cooking level 9. If the power function stops, the cooking zones change back automatically to the pre-set cooking level.

Switch on	(P) Touch	"P"
Switch off	(P) Touch	"P"
	(-) Touch	"9"

Power Management

The cooking zones have a maximal capacity. If this service type exceeds by switching on the power function, the power management reduces the cooking levels to another cooking zone. The display of this cooking zone changes between the pre-set and maximum possible cooking level for one minute. Afterwards the actual cooking level will be indicated.

Example:

Cooking zone most recently switched on	Other cooking zones	
Set cooking level	Set cooking level	Display/actual cooking level
"P"	9	6 alternately with 9/6

If the power function stops, the cooking zones change bac automatically to the pre-set cooking levels.

3.2 Safety cutoff

- Cooking field:
- If you do not set a cooking level in a cook zone within approx. 10 seconds after switching on of the cook field, the cook field switches off automatically.
 - If one or more sensor fields are covered longer than 10 seconds, e.g. by a pot placed on it, a signal sounds and the cook field switches off automatically.
 - If all cook zones are switched off, the cook field switches off automatically approximately 10 seconds later.

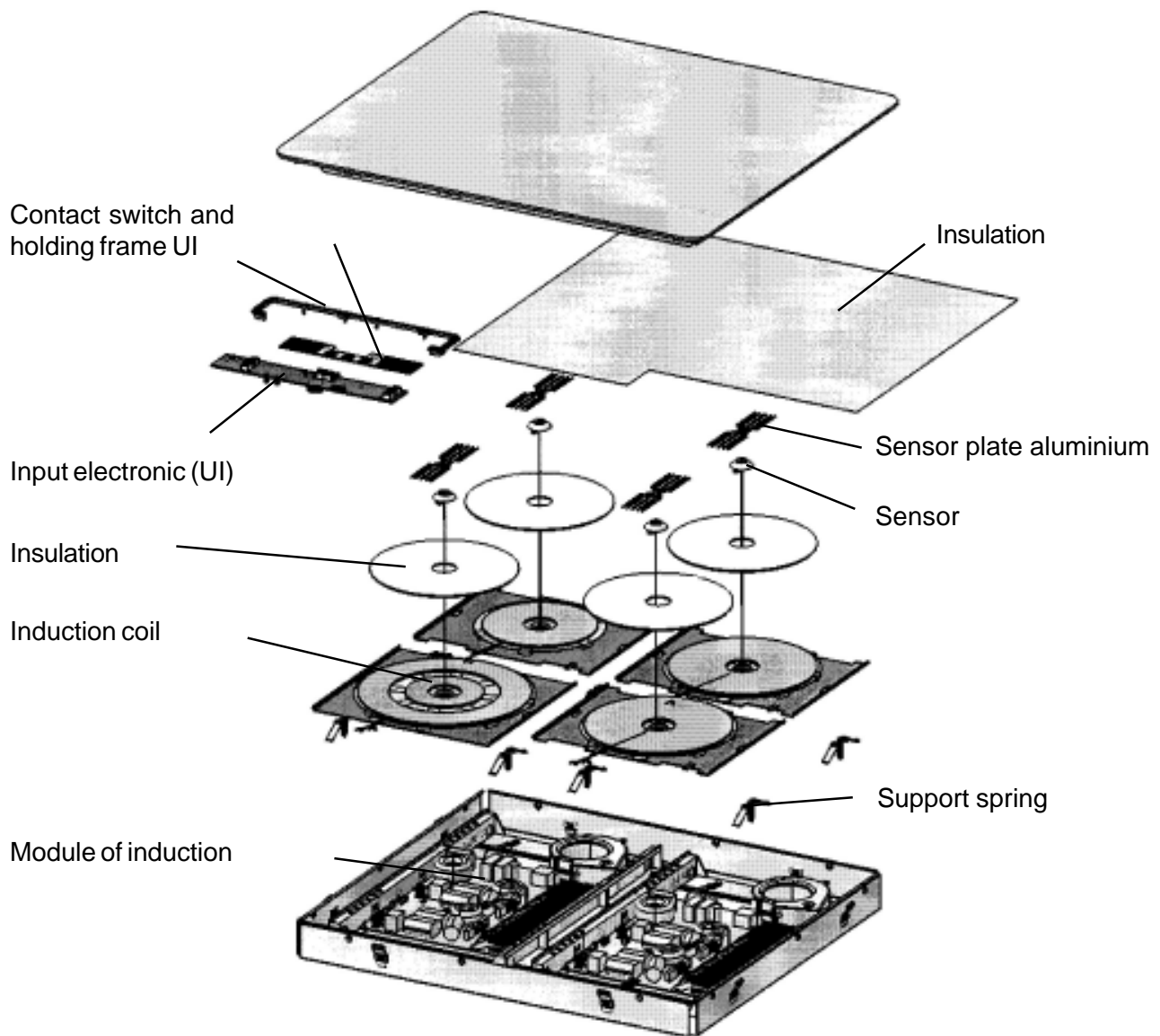
Control panel: Humidity (e.g. a wet cloth) or over-cooking liquid on the control panel switches all cook zones off immediately.

- Induction cooking zones:
- During overheating (e.g. an empty-cooked pot) the cook zone switches off automatically. „-“ is displayed. Before renewed use the cook zone must be set to „0“ and be cooled down.
 - If suitable table-ware is used, „F“ flashes in the display and after 10 minutes the display of the cook zone switches off.
 - If one of the cook zones is not switched off after a certain time or if the cook stage is not changed, the appropriate cook zone switches off automatically.

cooking level	The cooking zones are disconnected with:
1-2	6 Hours
3-4	5 Hours
5	4 Hours
6-9	1,5 Hours

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

4.1 General view



4.2 Contact switch and input electronics (UI)

The contact switch is glued directly on the glass ceramic and over a foil conductor connected with input electronics. The UI is fixed in a plastic framework, which is also glued directly onto on the glass ceramic.

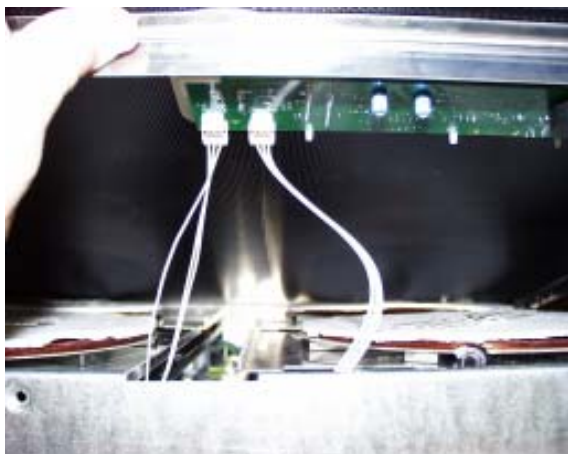


Fig. 1



Fig. 2

The trough framework is screwed onto the trough bath with star Torx TX20 screws. Before the glass ceramic can be removed after the complete loosening of the star screws, it must be lightly raised at the front, so that both 3-pole connection cable input electronics/ induction module can be taken off (fig. 1).



Fig. 3

Input electronics are configured and provided with a standard software. After extracting from the holding frame and taking the foil conductor off input electronics can be removed.

4.3 Induction coil

The spare part induction coil consists of the coil body, the white insulation and a coil holder.

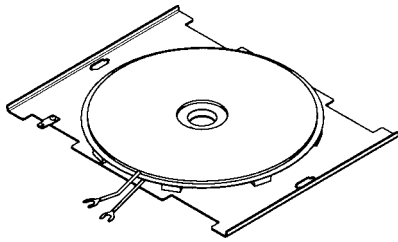


Fig. 1



Fig. 2



Fig. 3

The induction coils are held with springs, which must be locked into the induction module carrier (fig. 1). The nominal reduction rates in the trough (fig. 3) serve as position indicators.

Performance table

Chosen cooking level	% of the maximum performance	Cooking zone 140mm	Cooking zone 180mm	Cooking zone 210mm
1	3.0%	42	54	66
2	5.5%	77	99	121
3	10.5%	147	189	231
4	15.5%	217	279	341
5	21.0%	294	378	462
6	31.0%	434	558	682
7	45.0%	630	810	990
8	64.0%	896	1152	1408
9	100.0%	1400	1800	2200
P			2800	2800

4.4 The induction module

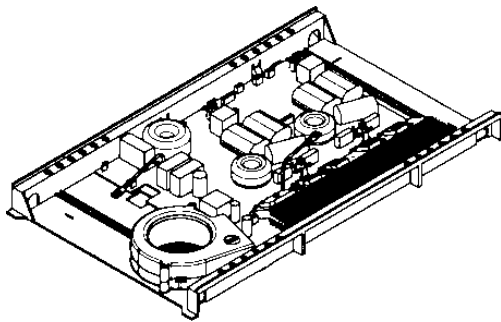


Fig. 1

With this series the induction modules are implemented as double modules, i.e. an induction trough with four induction cook places has 2 induction modules (fig. 1). The induction module is provided with a standard software and does not have not to be programmed.



Fig. 2



Fig. 3

The induction module of the trough is held with four sheet metal noses (fig. 2), in each case two above and below, which are led through the induction module carrier and interlocked afterwards.

Technical data

Main voltage:	230V
Rated frequency:	50/60Hz
Max. output:	3.6kW
Output per cooking area max.:	2.8kW
Total output:	3.6kW
Ambient temperature max.:	T85

5. Alarm Symptoms

5.1 Appliance not functioning at all, cannot be switched on

Alarm Symptom	Cooking Hob Display	Possible Alarm Cause	Alarm Remedying
House fuse triggered	None	Incorrect connection at the power connection terminal.	Test the pin assignment and 230VAC between N , Lines and earth on the supply line.
		Final induction phase defect.	See chapter Testing Power Component
Cooking field cannot be switched on.		No mains voltage or incorrect connection (1 phase missing ->no control voltage; N not connected to terminal 4 and 5 not connected)	Test the pin assignment and 230VAC , Neutral, Line(s) and earth. Both of the "N"s should be connected to wall terminals.
		Connector of the cable to the Touch Control /Display not inserted.	Test connector at the filter and Touch Control. Reapply the mains voltage.
		Fuse strip conductor burnt out and/or final induction phase defect	See Chapter Testing Power Component
		Touch control defect.	If 5VDC exist and power component already replaced: replace the UI. Ensure that the Touch pcb is well glued to the glass, and that the connection wire is well inserted.

5.2 Individual cooking zones do not work (partially) or work incorrectly or cannot be used

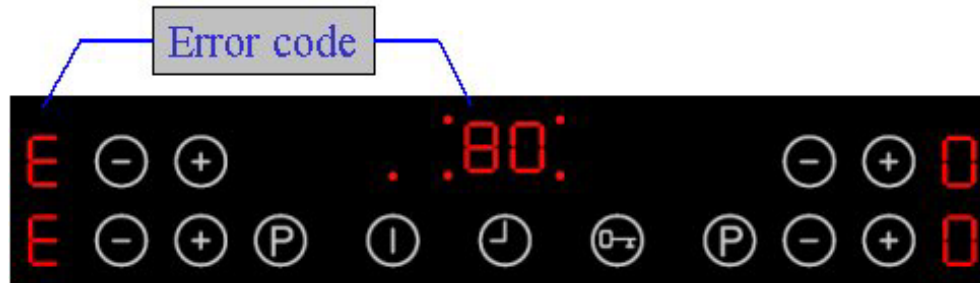
Alarm Symptom	Cooking Hob Display	Possible Alarm Cause	Alarm Remedying
Pan does not heat up.	Normal cooking phase	Pan in the border area of the pan detection and only works with low power	Use different pot or this pot on a smaller hob. See Chapter Pot Detection Information
	Flashing "F"	Pan not detected.	Check whether the pots or pans are suitable for induction. See Pot Detection Information
		Coil not correctly connected.	Check whether the coil lines are connected and the torque has been adhered to.
		Distance between coil and glass ceramic too large.	Check whether the coil is applied to the glass ceramic and whether the glass was pushed down when screwing in position.
No power on all hobs	Normal cooking phase	Demo mode activated.	See Chapter demo mode
Individual buttons cannot be used or cannot always be used.		Touch Control defect.	1) See Chapter 5. Touch Control Cooking Hobs Information. 2) Should this not help, replace Touch Control.
Cooking hob power too low or not provided for a longer duration.	Normal cooking phase	Incorrectly installed, exhaust not possible to the front.	See chapter installation situation.
		Unsuitable pots (bottom bent)	See Chapter Pot Detection Information
		Induction coil is not applied to the glass ceramic	Check whether the glass ceramic was pushed down when being screwed in position and the coil has been correctly positioned.
		Fan does not start.	1) When setting a cooking phase >0, the fan runs at a slow speed. If not, check the fan for foreign bodies, remove these where appropriate. 2) If necessary, replace fan. 3) Should this not succeed, replace power component.
"H" in display when cooking hob and oven cold and switched off.	"H"	Temperature sensor defect.	Replace corresponding coil with temperature sensor. Also see Instructions "E4" .

5.3 Alarm message „E“

When the appliance is switched on, „E“ / „xx“ Alarm Number is displayed in the timer display. The affected zones are subsequently displayed with an „E“ in the cooking phase display and are thereby disabled. The other zones can still be used.

Example:

1) Error code 8 for the left board



Alarm Symptom	Display in the Cooking Hob Timer	Possible Alarm Cause	Alarm Remedying
Alarm display in the Touch Control.	"E2"	User interface temperature too high	Temperature too high due to installation, or UI defect.
	"E3"	400 VAC detected, instead of 230VAC, on left or right module or both	1) verify power lines connection, on the wall 2) Should alarm still be displayed, verify internal connection in the hob, 3) Should alarm still be displayed, See Chapter Testing Power Component
	"E4"	Coil temperature sensor defect, not correctly connected, or broken, display in the corresponding zone.	1) Inspecting the contacts on the power board. Is the connector inserted? 2) The resistance at room temperature (25°C) amounts to 100 kOhm. If not in this range, replace affected temperature sensor. 3) Should above not succeed, replace power component concerned.
	"E5"	Coil temperature sensor defect, short, display in the corresponding zone.	1) Inspecting the contacts on the power board. 2) The resistance at room temperature (25°C) amounts to 100 kOhm. If not in this range, replace affected temperature sensor. 3) Should above not succeed, replace power component concerned.

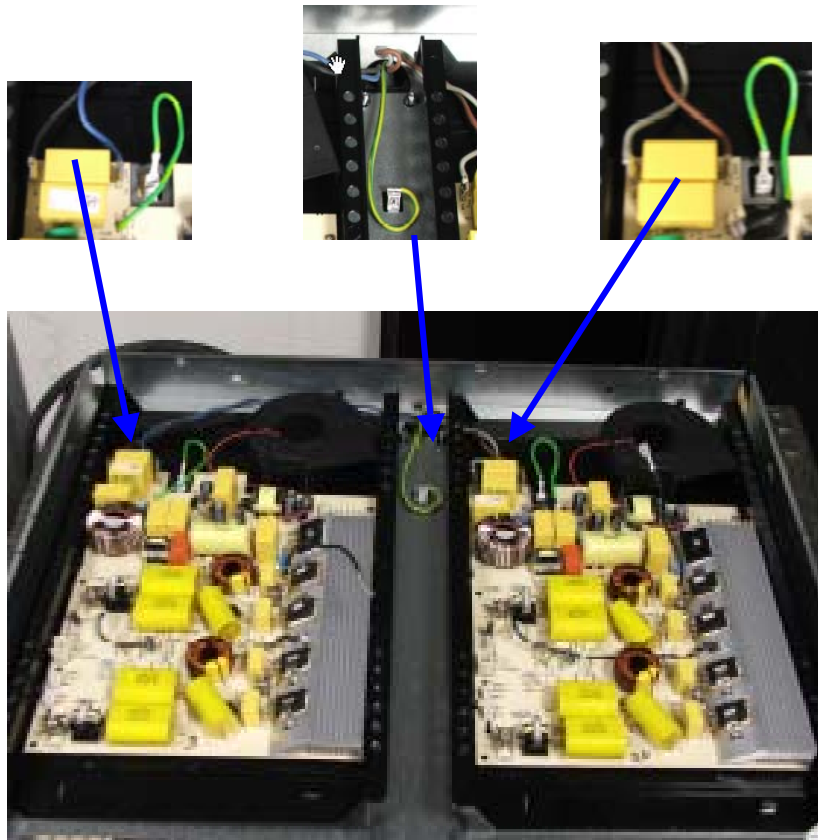
Alarm Symptom	Display in the Cooking Hob Timer	Possible Alarm Cause	Alarm Remedying
	"E6"	Communication defect inside power board	Replace identified power board.
	"E7" "7."	Alarm Temperature sensor heat sink power component E7 open E7. short	E7, verify connector, if not OK, Replace affected power component. E7. Replace affected power component.
	"E8"	Communication interference between power and User interface.	1) if left, Verify the power wiring in the wall. If OK, Reinsert connector of UI, Or replace cable. If not OK go to 3) 2) if Right, Verify middle connection of cable of UI, replace cable, if not OK go to 3), 3) take cable of left power board and connect to right power board, with a test cable longer connect UI right to power board left. A) same as before change User interface, "E6" crossed change the power board identified.
	"E9"	Communication defect inside user interface	Replace User interface.

5.4 Other Alarmsymptoms

Alarm Symptom	Display	Possible Alarm Cause	Alarm Remedying
Buzzer defect		Touch control defect.	Replace User interface.
Individual display elements do not illuminate or do not do so continuously.		Defective display elements	Replace User interface.
Pots cause noises		Unsuitable pots.	See Chapter Pot Detection Information.
		Normal sound level	Interference noises result from the high working frequency of the induction. This can vary from pan to pan. When measured in operation pursuant to EN60335 §11-3 pursuant to EN60704 with 4 pots <47dBA. A pot with boiling water has approx. 60-62dBA.

5.5 Connection guideline

Power cords inside the hob



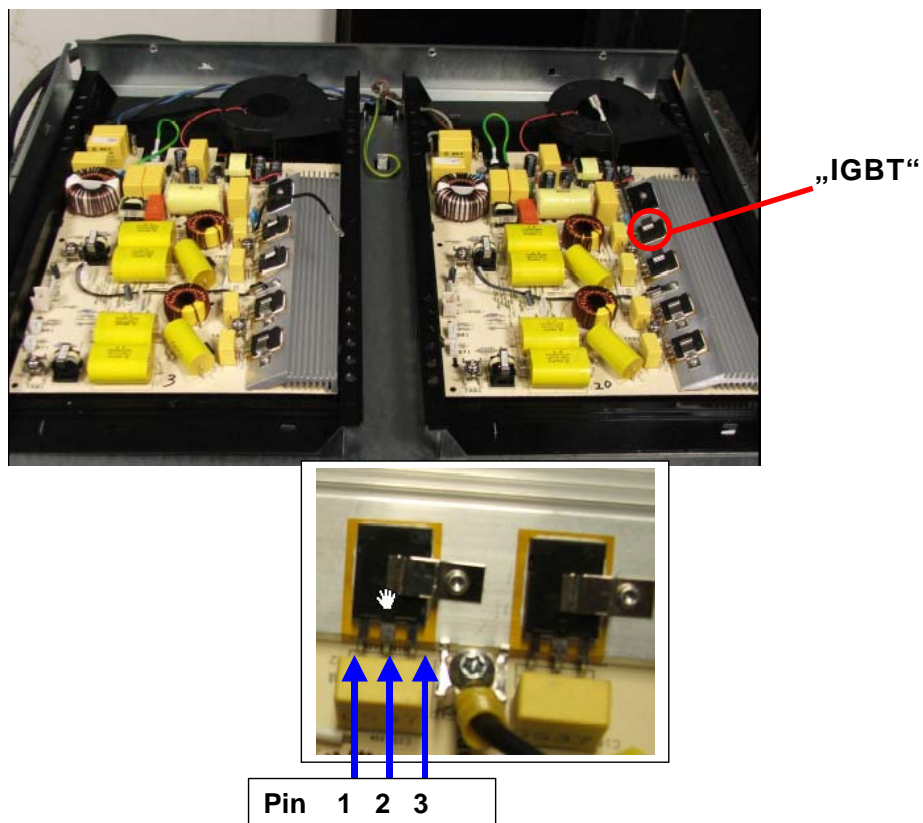
5.6 Display

For details, refer to Instruction Manual - Cool top platform

Symbol	Comment
„.“	Intermediate cooking levels
„-“	Induction – zone switched off because of over temperature at the coil sensor (empty pot)
„A“	Fast heating up function („Ankochstoss“)
„E“	On alarm display see error!
„F“	Pot detection – no pot detected
„H“	Residual heat indication
„L“	Lock – Function or key lock
„P“	Power (booster) function for induction

5.7 Inductions module test

1. When alarm messages and disabled zones exist („E“ in cooking phase display), please make a note of the power component which is affected.
2. Check power lines and connection to user interface is connected,
3. If IGBT has become shorted, this normally means that the IGBT housing is damaged. Replace power component.
4. Measure resistance at the IGBTs
Pin1-Pin2 or Pin2-Pin3 >50kOhm ▶ Okay
<50Ohm ▶ power component defect & replace
Only replace the affected power component.



5.8 Pot identification information

Suitable pot materials:

- Steel enamel
- Stainless steel (with magnet. bottom)
- Aluminium (with magnet. bottom)
- Cast iron

Unsuitable materials:

- Aluminium (à too much power)
- Copper
- Stainless steel (not magnetic)
- Glass
- Ceramic

The pot detection is designed for the following diameters:

Nominal burner \varnothing [mm]	Minimum pot bottom \varnothing instruction manual [mm]	Minimum pot bottom \varnothing adjusted with steel plate [mm]
145	125	100
180	145	120
210	180	140

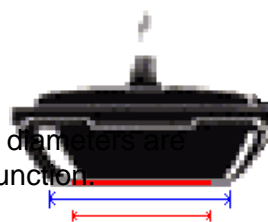
With regard to Ind. G4, the same diameter is stipulated in the instruction manuals as for the previous model. However, the real diameter which still functions is much smaller.

The performance for different pots can vary by as much as +/- 10-15%.

- As reference pots, we recommend enamelled steel pots (e.g. Silit).



- 2-3 mm thick round steel plates in various diameters are very suitable for testing the pot detection function.



- Sandwich bottoms can cause very unpleasant noises if they are not correctly pressed. The same is the case with regard to handles which are a little loose.



5.9 Touch Control Cooking Hobs Information

- The Touch Control works on the basis of the capacitive principle, an amortizing mass is detected, the signal modified is treated with some rules and validated as an action.
- If the user interface is not applied to the glass ceramic, the signal for the button evaluation is much smaller and the buttons can no longer be used, i.e. always ensure that the plastic supports are always intact.
- Should the appliance switch itself off without the glass ceramic having been touched, this is due to a button being activated. Either external water or material on the glass.

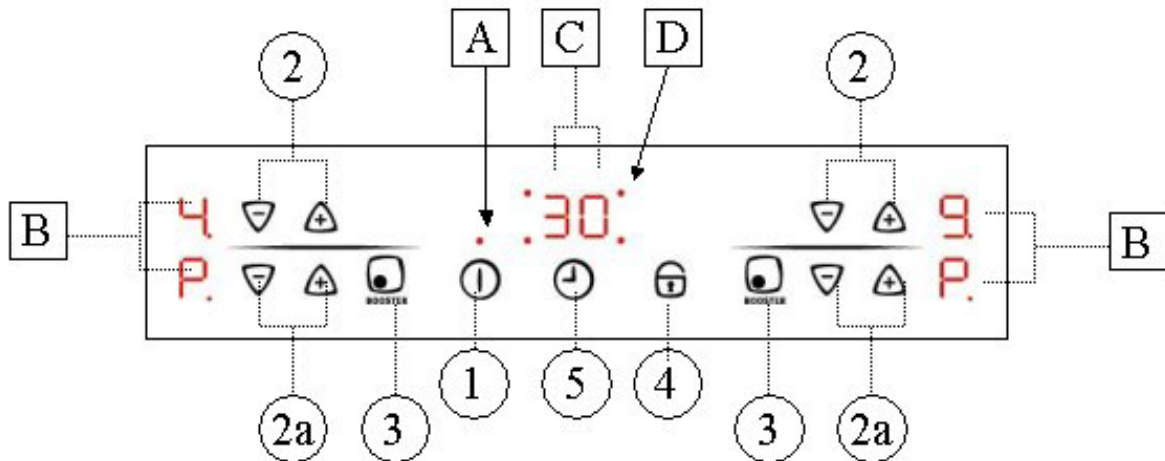
Instructions on the operation / possible operation errors if the buttons do not function:

- Please do not approach slowly, especially not from the side, it is better to approach the button faster. A signal change is above all evaluated.
- Applying excessive pressure to the cooking hob will not make a difference. It is better to release it for 5 sec. and then press the button again.
- If the adjustment of the cooking stage/timer does not continue after the button has been released, this is due to the fact that the Touch Control receives a „Button Pressed“ signal even from a distance of some mm.

5.10 Demo mode / Self test (Service mode) / Alarm Menu

To enter the Demo mode / service mode / factory test menu , the following sequence of buttons must be pressed:

1. Hob is off. Press main switch continuously until display is going off (without beep).
2. Press the „+“ and „-“ buttons (2a) of both front zones together (all 4 keys together) for about 3 seconds (-> short beep).
3. Press the timer selection key (-> again short beep).



4. The display (C) shows a „d“ for demo mode. If you press the timer select key again you switch to „S“ for service mode, another press gets you to „E“ the alarm menu!
5. By pressing the button „+“ of a cooking zone you activate the menu.
6. By pressing the button „-“ of a cooking zone you deactivate the menu.

Demo Mode:

If demo mode is activated the display with the „d“ shows additionally a dot. After selecting the demo mode, the electronic goes to off. Now it can be used like usual but only without heater activation. The deactivation of the demo mode is done in the same procedure as activating. After deactivating the demo mode the electronic must go off. Now the hob can be used in normal mode.

Service Mode “S”

Routine:

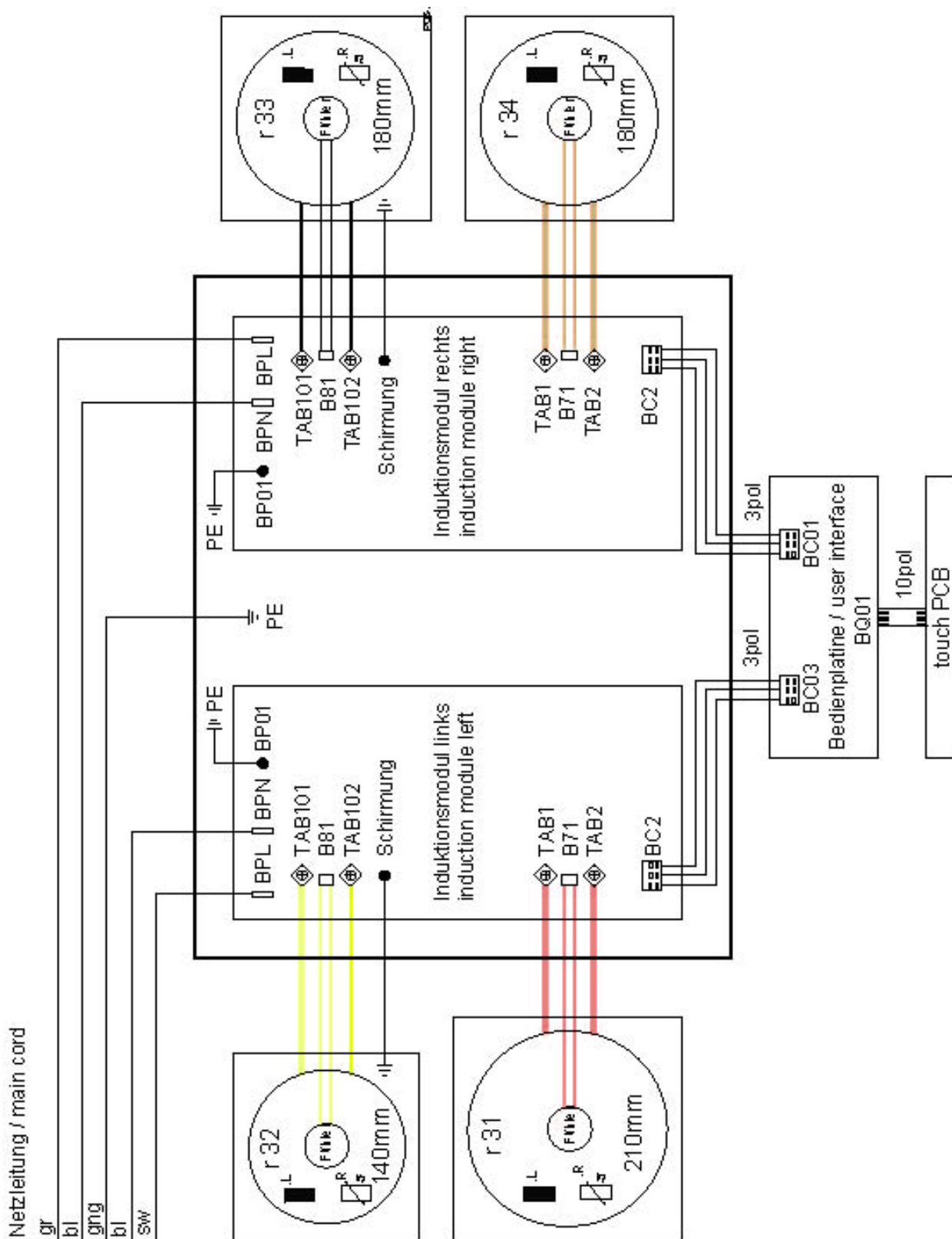
1. Show user interface SW version
2. Show control SW version
3. Show power SW version
4. 400V detection test: “400U” blink on displays until 400V is not applied. When 400V is detected, the buzzer ring and “OU” is shown on display until 230V is not applied.
5. Test all LEDs / Displays for 7 sec; during this time, booster is set on rear zones to test sensors. When the time is elapsed, if the sensor are OK the test jump to the following step otherwise “S” is shown alternatively on zones where the error occurred.
6. Zone power test: a different power level is set on each zone for 2 seconds

Alarm Mode “E”

The last 5 stored alarm codes (if >0) are displayed like an actual alarm, each for 5 sec., starting with the oldest (read request ‘5’ Alarm code message) to the newest (read request ‘1’).

6. Wiring diagrams

6.1 Example-slotted plan



6.2 Example-circuit diagram

