E3903i / E3904i
Induction Boiling Table

INSTALLATION and SERVICING INSTRUCTIONS

IMPORTANT

The installer must ensure that the installation of the appliance is in conformity with these instructions and National Regulations in force at the time of installation. Particular attention MUST be paid to –

BS7671 IEE Wiring Regulations
Electricity at Work Regulations
Health and Safety At Work Act
Fire Precautions Act

WARNING

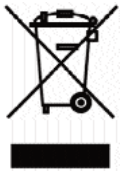
BEFORE ATTEMPTING ANY MAINTENANCE, ISOLATE THE APPLIANCE AT THE MAINS ISOLATING SWITCH AND TAKE STEPS TO ENSURE THAT IT CANNOT BE INADVERTENTLY SWITCHED ON.

IT IS MOST IMPORTANT THAT THESE INSTRUCTIONS BE CONSULTED BEFORE INSTALLING AND COMMISSIONING THIS APPLIANCE. FAILURE TO COMPLY WITH THE SPECIFIED PROCEDURES MAY RESULT IN DAMAGE & NEED FOR A SERVICE CALL.

On completion of the installation these instructions should be left with the Engineer-in-Charge for reference during servicing. In addition, the Users Instructions should be handed to the User, having had a demonstration of the operation and cleaning of the appliance.

PREVENTATIVE MAINTENANCE CONTRACT

To obtain maximum performance from this unit regular servicing of the appliance should be undertaken to ensure correct operation, it is functioning as intended, and safe to use. We recommend servicing in accordance with SFG20 Maintenance Schedules and as a minimum, after 2,500 hours of use, or annually, whichever comes first and that a maintenance contract be arranged with an appointed service contact. Visits may then be made at agreed intervals to carry out adjustments and repairs.



WEEE Directive Registration No. WEE/DC0059TT/PRO
At end of unit life, dispose of appliance and any replacement parts in a safe manner, via a licenced waste handler.
Units are designed to be dismantled easily and recycling of all material is encouraged whenever practicable.

Falcon Foodservice Equipment
Wallace View, Hillfoots Road, Stirling. FK9 5PY. Scotland.

T100768 Ref. 12

SERVICE CONTACT
Phone: 01438 363 000 Fax: 01438 369 900

IMPORTANT INFORMATION

ELECTRICAL SAFETY AND ADVICE REGARDING SUPPLEMENTARY ELECTRICAL PROTECTION

Commercial kitchens and foodservice areas are environments where electrical appliances may be located close to liquids, or operate in and around damp conditions or where restricted movement for installation and service is evident.

The installation and periodic inspection of the appliance should only be undertaken by a qualified, skilled and competent electrician; and connected to the correct power supply suitable for the load as stipulated by the appliance data label.

The electrical installation and connections should meet the necessary requirements to the local electrical wiring regulations and any electrical safety guidelines.

We recommend:-

- Supplementary electrical protection with the use of a type A residual current device (RCD)
- Fixed wiring appliances incorporate a locally situated switch disconnector to connect to, which is easily accessible for switching off and safe isolation purposes. The switch disconnector must meet the specification requirements of IEC 60947.

Your attention is drawn to:-
BS 7671:2018–Guidance Note 8 - 8.13 : Other locations of increased risk

It is recognized that there may be locations of increased risk of electric shock other than those specifically addressed in Part 7 of BS 7671. Examples of such locations could include laundries where there are washing and drying machines in close proximity and water is present, and commercial kitchens with stainless steel units, where once again, water is present.

Where because of the perception of additional risks being likely, the installation designer decides that an installation or location warrants further protective measures, the options available include:

- Automatic Disconnection of Supply (ADS) by means of a residual current device having a residual operating current not exceeding 30mA;
- Supplementary protective equipotential bonding; and
- Reduction of maximum fault clearance time.

The provision of RCDs and supplementary bonding must be specified by the host organization’s appointed installation designer or electrical contractor and installed by a suitably qualified and competent electrician so as to comply with Regulations 419.2 and 544.2

Warranty Policy Shortlist

Warranty does not cover :-

- Correcting faults caused by incorrect installation of a product.
- Where an engineer cannot gain access to a site or a product.
- Repeat commission visits.
- Replacement of any parts where damage has been caused by misuse.
- Engineer waiting time will be chargeable.
- Routine maintenance and cleaning.
- Gas conversions i.e. Natural to Propane gas.
- Descaling of water products and cleaning of water sensors where softeners/ conditioners are not fitted, or are fitted and not maintained.
- Blocked drains
- Independent steam generation systems.
- Gas, water and electrical supply external to unit.
- Light bulbs
- Re-installing vacuum in kettle jackets.
- Replacement of grill burner ceramics when damage has been clearly caused by misuse.
- Where an engineer finds no fault with a product that has been reported faulty.
- Re-setting or adjustment of thermostats when unit is operating to specification.
- Cleaning and unblocking of fryer filter systems due to customer misuse.
- Lubrication and adjustment of door catches.
- Cleaning and Maintenance
    - Cleaning of burner jets
    - Poor combustion caused by lack of cleaning
    - Lubrication of moving parts
    - Lubrication of gas cocks
    - Cleaning/adjustment of pilots
    - Correction of gas pressure to appliance.
    - Renewing of electric cable ends.
    - Replacement of fuses
    - Corrosion caused by use of chemical cleaners.
    - Cleaning of all filters and airways
    - Faults occurring as a result of airway obstruction.
    - Use of the unit without filters.

SECTION 1 - INSTALLATION

UNLESS OTHERWISE STATED, PARTS WHICH HAVE BEEN PROTECTED BY THE MANUFACTURER ARE NOT TO BE ADJUSTED BY THE INSTALLER.

1.1 MODEL NUMBER, NETT WEIGHT and DIMENSIONS

Model	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
E3903i boiling top	900	820	890	92
E3904i boiling top	900	820	890	92

1.2 SITING

The appliance should be installed in a well-lit position on a firm, level, non-combustable floor. Where unit is to be positioned in close proximity to a wall, partition, kitchen furniture, decorative finishes, etc., it is recommended that these be constructed of a non-combustible material.
If this is not possible they should be clad in a suitable non-combustible, heat-insulating material.
Close attention should be paid to Fire Regulations.

1.3 ELECTRICAL SUPPLY

The unit is suitable for AC supplies only. The standard terminal arrangement is:

2 phase/Neutral 5 wire connection (400V 3N~) or 3 phase/no neutral 4 wire connection (400V 3~)

WARNING – THIS APPLIANCE MUST BE EARTHED

Phase 1	BROWN
Phase 2	BLACK
Phase 3	GREY
Neutral	BLUE *(when applicable)*
Earth	YELLOW/GREEN

1.4 SUPPLY CONNECTION

Mains input connecting cable is not supplied; Suitable cable will conform to code designation 60245 IEC 57.
Cable entry is at unit rear and is suitable for 25mm conduit. A suitably rated isolating switch with contact separation of at least 3mm in all poles must be installed and wiring executed in accordance with relevent regulations.
Access to terminal block is gained by removing an access panel close to cable entry gland on rear panel.

Note: Mains cable must be fed through ferrite ring supplied before connecting to mains terminal block.

1.5 ELECTRICAL RATINGS

Electrical loading is as stated on appliance data plate. After installation, the engineer should check satisfactory operation and demonstrate method of use to kitchen staff. Location of mains isolating switch should be identified for use in the event of an emergency or during cleaning.

SECTION 2 - ASSEMBLY and COMMISSIONING

NOTE: Users MUST be made aware that individuals fitted with a pacemaker should consult their doctor if in close proximity to this unit. This induction unit emanates a 20Khz output that may effect older types of pacemaker.

2.1 ASSEMBLY

a) Unpack and level appliance

b) The unit is equipped with rear stand-off plates to ensure a minimum gap between the appliance and the rear wall. **These must NEVER be bent, twisted or deformed in any way.**

c) Ensure fan intake filter is fitted and secured in position below control panel.

2.2 CONNECTION TO AN ELECTRICAL SUPPLY

Connect as detailed in Sections 1.3 and 1.4.

2.3 STARTING UP

a) Switch all four cooking zones on to position 10.

b) Ensure all four LEDs light and begin to flash.

c) Place a suitable pan (filled with water) upon a cooking zone. (Pan bases should be constructed of a ferrous material and cannot be less than 120mm (12cm) in diameter.)

d) Ensure that corresponding LED stops flashing and remains lit.

e) Lift pan from cooking zone: LED should again begin to flash.

f) This indicates that *"Pan Detection"* feature is working.

g) Repeat on all four cooking zones.

h) Leave pots to heat until water boils and switch controls to maintain simmer.

i) Switch control Off.

2.4 INSTRUCTION TO USER

After installation and commissioning is completed, please hand User Instructions to user and ensure that the person(s) responsible understand the instructions regarding correct operation and cleaning of the appliance. Particular emphasis should be given to:

- suitable pan type,
- Cleaning of air filter regularly,
- Keeping cooking zones free from all objects, particularly metal utensils, at all times.

The user must also be made aware of potential to heat jewllery and disrupt electronic equipment placed over the Induction zones magnetic field.

SECTION 3 – SERVICING, MAINTENANCE AND CONVERSION

BEFORE ATTEMPTING ANY MAINTENANCE, ISOLATE THE APPLIANCE AT THE MAINS ISOLATING SWITCH AND TAKE STEPS TO ENSURE THAT IT CANNOT BE INADVERTENTLY SWITCHED ON.

MAINTENANCE CHECK

Regular servicing of the appliance should be undertaken to ensure correct operation, it is functioning as intended, and safe to use. We recommend servicing after 2,500 hours of use, or annually, whichever comes first.

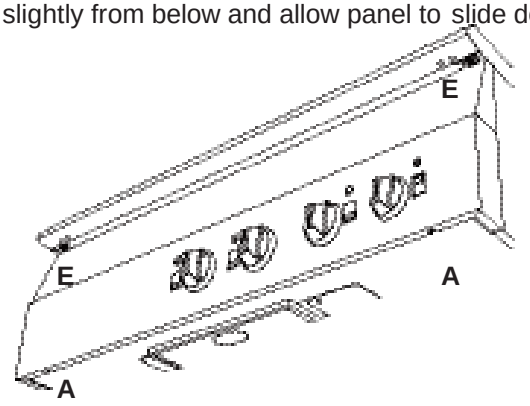
Any maintenance schedule should be carried out in accordance with SFG20 Maintenance Schedule. Should any issues with the integrity of the components be identified these should be replaced. If the appliance is not considered safe the unit should be removed from service and the responsible person advised why the unit is not safe to use and what remedial action is needed. Contents of the maintenance schedule should be agreed with the maintenance provider.

Tools required:
A. 8mm spanner or socket
B. 10mm spanner or socket
C. Adjustable spanner
D. Pozidriv screwdriver *(#1)*
E. Pozidriv screwdriver *(#2)*
F. 5mm flat blade screwdriver

3.1 CONTROL PANEL *(Refer to Figure 1)*

To replace a faulty switch or LED, remove control panel fixings from positions E and A.
Pull panel forward slightly from below and allow panel to slide down until clear.

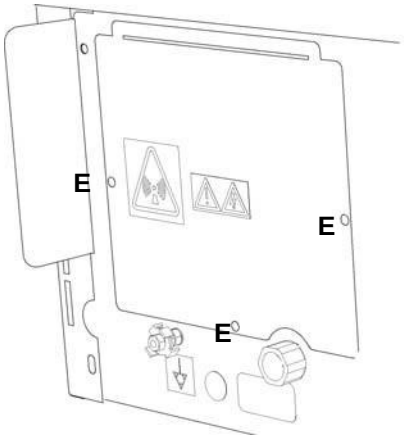
Figure 1.



3.2 MAINS ACCESS PANEL *(AT REAR) (Refer to Figure 2)*

Remove fixings that secure access panel to rear. Replace in reverse order.

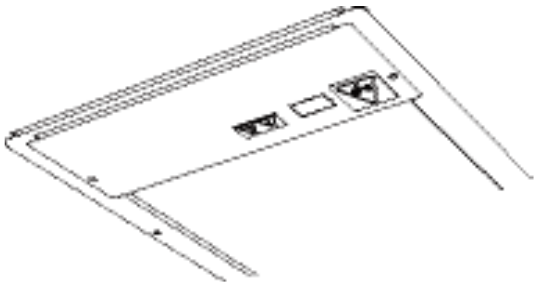
Figure 2



3.3 ACCESS PANEL TO GENERATOR

(situated at rear of base panel - Refer to Figure 3) Remove fixings that secure access panel to generator cradle on base. Replace in reverse order.

Figure 3



3.4 LED INDICATORS

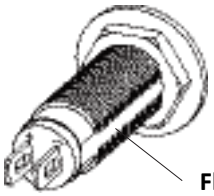
Remove control panel as detailed in Section 3.1.

Note: Indicators are polarity driven. Green cable *(-)* connects to spade terminal above LED body flat side. *(Refer to Figure 4)*

Remove two wires connected to LED and also nut and washer.

Replace in reverse order.

Refer to wiring Diagram A in Section 5 of this manual.



3.5 CONTROL SWITCH REPLACEMENT

Remove control knob.

Remove control panel as detailed in Section 3.1. Remove associated LED *(if required)*, refer to Section 3.4.

Remove 2 fixings that secure control to switch housing.

(Refer to Figure 5)

Remove main access panel, refer to Section 3.2.

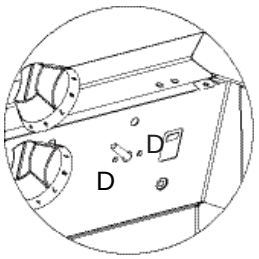
Remove generator access panel, refer to Section 3.3

Identify wires that relate to switch and LED attached to generator unit.

Disconnect associated plugs and pull cables through eyelets at front of unit. *(Refer to Figure 6)*

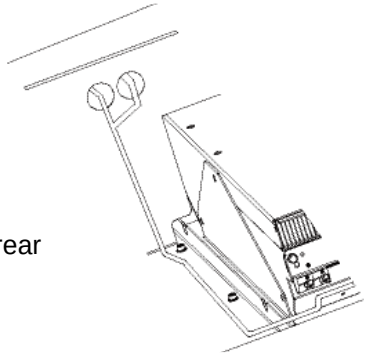
Replace switch and re-assemble in reverse order. Ensure wires are routed along generator LH side as viewed from rear. *(Refer to Figure 6)* Refer to wiring diagram A in Section 5 of this manual

Figure 5



Control Cable routing

Figure 6
Inside unit from rear



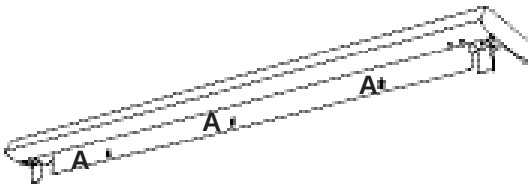
3.6 CERAMIC HOB ASSEMBLY

Remove control panel as detailed in Section 3.1. Remove 3 fixings that secure hob to support rail inside unit. *(Refer to Figure 7)*

Remove 3 fixings that secure hob to rear panel.

Refer to Figure 8)

Figure 7



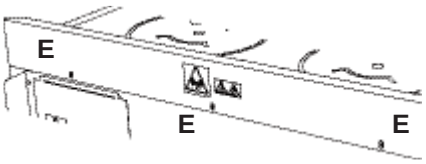


Figure 8

IT IS RECOMMENDED THAT TWO PERSONS CARRY OUT THE FOLLOWING STEP.

Carefully lift and remove top frame/glass-ceramic plate assembly, and lay on a flat surface.

If replacing hob in the event of glass damage, ensure any glass debris is cleared away from induction coils and from inside of unit.

Ensure that no coil spacers have been removed or disturbed when removing the glass panel. If this is so, then they must be restored to their locations. *(Refer to Figure 10).*

Replace in reverse order.

3.7 INDUCTION COIL ASSEMBLY

Warning

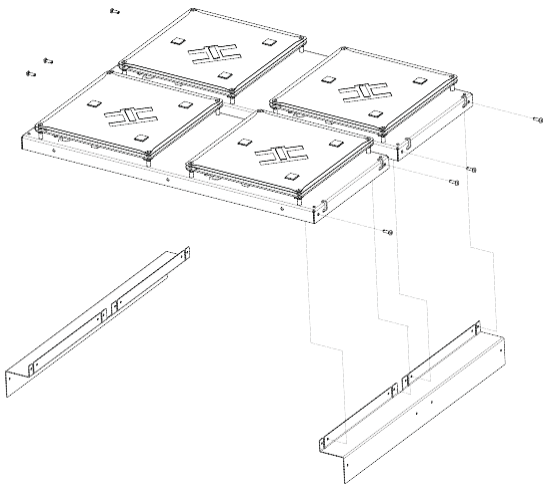
DO NOT USE THE UNIT IF THE CERAMIC TOP IS CHIPPED, CRACKED OR BROKEN. THE PANEL NEEDS TO BE REPLACED!

Remove control panel as detailed in Section 3.1. Remove hob assembly as detailed in Section 3.6. Release 4 fixings from sides of appropriate aluminium coil carrier plate as detailed in Figure 9.

Tilt coil carrier to access terminal blocks below coils. Release short cables *(red)* that run from coil to terminal block. Release 4 fixings from coil corners. Retain springs and screws (4 of each)

Carefully remove coil while easing red cables through rubber grommet.

Figure 9



Remove fixings at top corners *(E)* of faulty coil assembly. Take care to catch spacer and spring as screw is released. *(Refer to Figure 9)*

Remove earth cable fixing *(E)*.

The coil assembly can now be removed. Replace and re-assemble in reverse order.

Refer to wiring diagram A in Section 5 of this manual.

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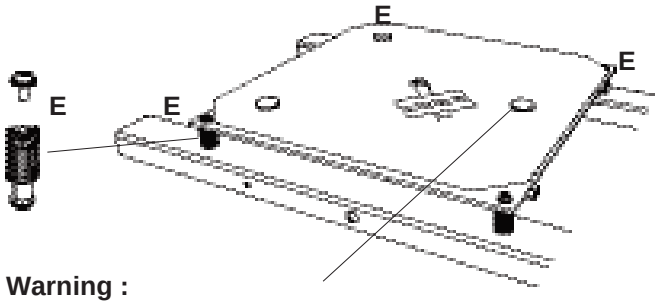


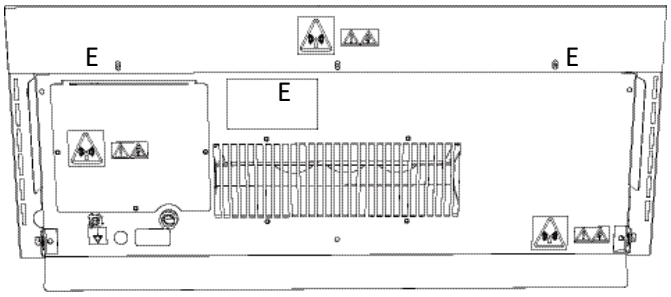
Figure 10

Warning :

When replacing coils ensure that spacers are in position and only fitted with a single, layered spacer as indicated. (spacers can be circular or square)

3.8 REAR PANEL c/w WALL SPACERS Remove main access panel. Refer to Section 3.2. Disconnect main cable from mains terminal. Remove 12 fixings. Refer to Figure 11.
Slide panel down from under hob rear. Replace in reverse order.
Refer to wiring diagram B in Section 5 of this manual.

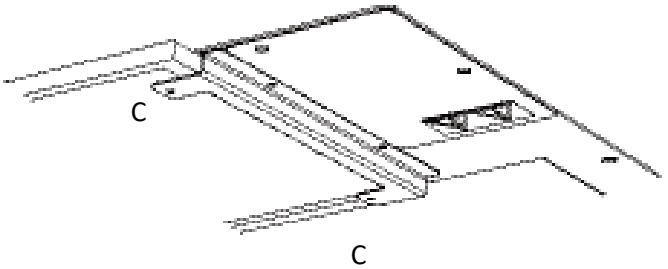
Figure 11



3.9 FRONT GENERATOR ACCESS PANEL

Remove 2 fixings *(C)* that secure panel to generator cradle. Refer to Figure 11.
Replace in reverse order.

Figure 12



3.10 INDUCTION GENERATOR UNIT *(Complete)*

THERE ARE **NO SERVICABLE PARTS** WITHIN THIS COMPONENT. **DO NOT ATTEMPT TO GAIN ENTRY** TO THE GENERATOR AS THIS WILL INVALIDATE WARRANTY. AFTER REPLACEMENT, THE FAULTY GENERATOR UNIT MUST BE RETURNED - **COMPLETE AND INTACT** TO FALCON FOODSERVICE EQUIPMENT.

To remove generator assembly: Remove rear panel, refer to Section 3.8.
Remove rear base panel to gain access to generator, refer to Section 3.3.
Remove front base panel to gain access to generator, refer to Section 3.9.
Remove flue by undoing fixings *(A)* on either side of generator. Refer to Figure 13.
Disconnect all cables from rear of generator unit, noting their positions.
Disconnect mains cables from front of generator unit.

CAUTION! THE GENERATOR UNIT IS HEAVY AND IT MAY BE REQUIRED THAT TWO PEOPLE ARE INVOLVED WITH CARRYING OUT THE FOLLOWING.

Carefully remove fixings at either side of generator cradle. Support the weight of the generator base when the last 2 fixings are removed.
Carefully slide generator toward rear. Remove from unit. Install replacement generator assembly. Replace all parts in reverse order and ensure correct termination and replacement of all connections.
Refer to wiring diagram A in Section 5 of this manual. The faulty generator must be returned to Falcon Foodservice Equipment for warranty analysis.

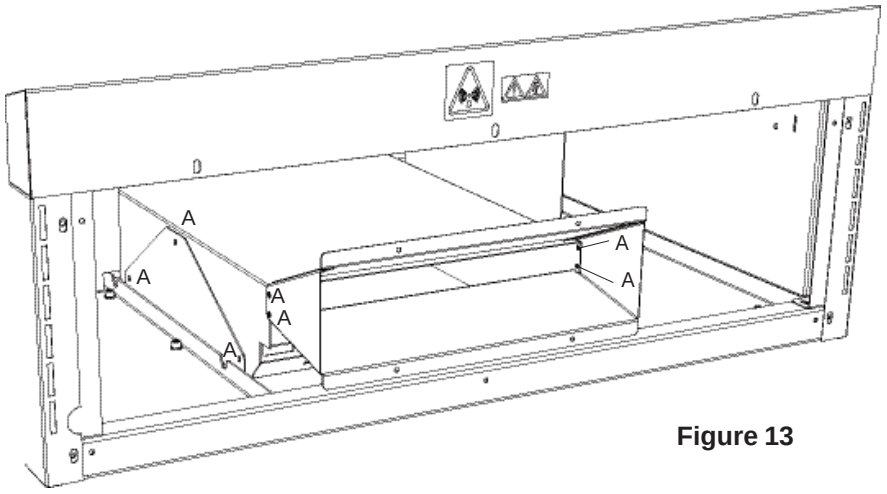


Figure 13

SECTION 4 - SPARES

When ordering spare parts, always quote appliance type and serial number.
This information will be found on data badge attached to base plate.

SECTION 5 - TROUBLESHOOTING

If a fault occurs during use, an error code will be displayed in a series of flashes.
These correspond to numbers in code column of table on pages 8, 9 and 10.
For example, 6 short flashes followed by an extended flash would indicate error code 06 *(Generator internal temperature too high).*
The codes are provided to diagnose possible faults and the action required to remedy any such condition.

Note: Most faults can be rectified by simply switching unit off for 10 seconds. After this time, turn power back on at mains supply.

If fault continues to occur after such action then please refer to the table. This will provide a solution to rectify the condition.

SUPPLY PROTECTION DEVICE

The appliance is fitted with a miniature circuit breaker *(MCB)* as additional protection against over current.

If unit fails to operate or show any operational indicators, carry out the following check:

- Isolate power at main switch.
- Remove rear access panel found above mains entry point *(3 fixings)*. Refer to Figure 2.
- Find MCB located on LH sidewall when viewed from rear.
- Ensure MCB has not tripped during use or while in transit during delivery.
- MCB should be at ‘ON’ Position.
- Switch appliance mains power ON at isolator.
- Ensure appliance powers up and does not trip MCB again.
- Rear access panel MUST BE REPLACED.

Should MCB trip again, call a service engineer.

Symptoms may indicate a failed induction generator.

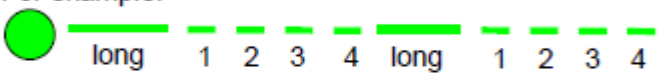
ERROR CODE TABLE

There are two different error types:

- Generator errors (E1)
- Digital control errors(E2)

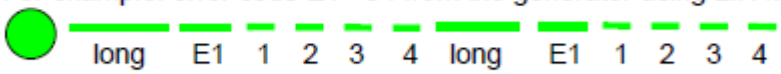
Generator errors are faults detected by the generator, faults can be detected according to the duration and frequency of the green light blinking. When using potentiometer knob, the green lamp lights one time long and then short regular flashes

For example:

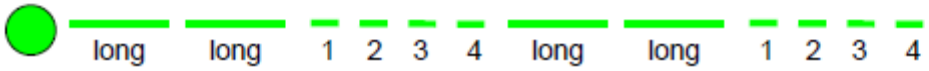


When using LIN knob, the green lamp lights one time long, one medium flash (E1) and then short regular flashes. The number of these short flashes is the error number. This pattern is constantly repeated.

For example: error code E1 - 04 from the generator using LIN knob:



Digital control errors are faults from the digital controls. On the display appears "E2", the green lamp lights two times long and then short regular flashes. The number of these short error flashes is the error number. The pattern is constantly repeated.



Generator errors

Error No.	Name	Cause	Corrective action
E1 ↔ 01	Hardware over current	Unsuitable pan material	Use suitable pan material
		Wrong or defective coil	Check the coil
		Wrong initialization	Set position 0 in the knob
E1 ↔ 02	No inductor current	Inductor connection failure	Connect the inductor properly
E1 ↔ 03	IGBT temperature too high	Air routes blocked Fan clogged, temperature sensor of IGBT defective	Clear air routes Clean fan, check fan rotation
E1 ↔ 04	Cooking zone temperature too high or too low	Pan empty	Remove pan, switch off and wait a couple of minutes until the cooking field has cooled down
		Temperature sensor faulty	The sensor must be replaced
		Power board faulty	Replace the generator
E1 ↔ 05	Control unit failure	Control unit defective or wiring defective	Check or replace operating unit, check wiring harness to unit
		Digital control has faulty ID	Switch the generator off, adjust the DIP-switches correctly
		Control unit faulty	Replace the control unit
E1 ↔ 06	Internal temperature too high	Air routes blocked Fan clogged, temperature sensor defect, close exterior heat sources	Clear air routes Clean fan
E1 ↔ 07	Coil temperature	Coil temperature too high	Remove pan, switch off and wait a couple of minutes until the cooking field has cooled down
		Temperature sensor faulty	The sensor must be replaced
E1 ↔ 08	Mains phase failure	Breakdown of mains phase or mains quality insufficient	Check mains supply
E1 ↔ 09	External temperature sensor	External temperature sensor missing or damaged	Connect or replace the external temperature sensor
E1 ↔ 10	Communication error	Failure on LIN or CAN-Bus, no connection between keyboard and generator	Disconnect from mains and check connection
E1 ↔ 11	Initialisation error	Needless control unit connected	Connect control unit to the correct control plug
		Digital control has faulty ID	Switch the generator off, adjust the DIP-switches correctly
		Failure while initialising of the hardware	Just wait, the device will be reset approx. every 30 sec.
		CAN-Bus termination RJ45 disconnected or damaged	Connect or replace the CAN-Bus termination RJ45
E1 ↔ 13	Mains connection error	Mains voltage is too high or too low	Check mains connection
E1 ↔ 14	Mains adaptor error	Mains voltage is too high or too low	Check mains connection
E1 ↔ 15	Empty pan protection	Mains error	Switch off the main fuse, wait a few seconds and switch on
		Empty pan	Remove pan, switch off and wait for a couple of minutes until the cooking field has cooled down
		Defective temperature sensor of the coil	The sensor must be replaced
E1 ↔ 16	Temperature Control Error (only in Quad+ TC variant)	No temperature set point received	In case of external UI, send temperature set points instead of power
		Generator in power control mode	Set parameter to temperature control mode
		Old Quad+ bus version	Contact customer support

Digital errors

Error No.	Digital control	Name	Cause	Corrective action
E2 ↔ 02	LIN Knob	System integrity	Damaged LIN Knob	Replace the LIN Knob
E2 ↔ 03	FlexTouch	Key pad permanently on	Water or cookware on the control glass	Clean control area
			Key button defect	Replace digital control unit
	LIN Knob	Double-Sided Control lost	One of Double-Sided nodes damaged	Check LIN Bus Connection
E2 ↔ 05	LIN Knob and FlexTouch	LIN Bus opened	No detection of communication	Check LIN Bus// Replace connecting cable
E2 ↔ 06	LIN Knob	LIN Bus collision	Address conflict	Check Node Id// Check LIN Bus Connection
E2 ↔ 10	LIN Knob and FlexTouch	Wiring interruption	Faulty connection between key pad and generator	Replace connecting cable
		Faulty ID	Digital control has a faulty ID	Switch the generator off, adjust the DIP-switches correctly
E2 ↔ 11	FlexTouch	Self-diagnosis error	Self-diagnosis of Software located error	Switch the power off and on, if the error remains contact customer support
E2 ↔ 13	FlexTouch	Invalid configuration data	The device found no valid configuration data	Contact customer support.
E2 ↔ 14	LIN Knob and FlexTouch	Supply voltage	Problem with supply voltage of the key pad	Check connecting cable// Replace the LIN knob
E2 ↔ 20	LIN Knob and FlexTouch	Compatibility of LIN version	LIN version is not compatible	Contact customer support
E2 ↔ ΦΦ	LIN Knob and FlexTouch	Unknown error	An error occurred, its cause is unknown	Contact customer support.

SECTION 6 - WIRING DIAGRAMS

6. 1 Testing the Coil or Coil Sensor

Remove rear base generator access panel. refer to Section 3.3.

Identify appropriate wires, disconnect and test as follows:

* use a multimeter on a resistance (Ω) setting:

A correct inductor coil reading will indicate 0Ω.

A correct temperature sensor reading will indicate approximately 985Ω

6.2 Load Test

To check current in each phase, set all cooking zones to Position 10.

Position a water-filled upon each cooking zone.

A clamp meter must be used to measure the following data. This is because of the nature of the wiring configuration. *(i.e. delta - no neutral)*

6.3 E3903i Range - Induction Hob Only

Terminal	*I* Actual	*I* Max	*I* Min
L1	29A	31.9A	26.1A
L2	29A	31.9A	26.1A
L3	29A	31.9A	26.1A
Total	87A	95.7A	78.3A

6.4 E3903i - With Oven Switched On

Terminal	*I* Actual	*I* Max	*I* Min
L1	A	A	A
L2	A	A	A
L3	A	A	A
Total	A	A	A

6.5 E3904i Range - Induction Hob Only

Terminal	*I* Actual	*I* Max	*I* Min
L1	A	A	A
L2	A	A	A
L3	A	A	A
Total	A	A	A

6.6 E3904i - With Oven Switched On

Terminal	*I* Actual	*I* Max	*I* Min
L1	A	A	A
L2	A	A	A
L3	A	A	A
Total	A	A	A

Note: If any current is outwith these tolerances, the cause must be investigated and rectified.

SECTION 6 - E3903i / E3904i WIRING DIAGRAM