

**Installation Instructions & User Manual**

# **ECO Range**

**Wood Pellet burning cooker**



Please retain these instructions for future reference.

## **WARNING**

The ECO range cooker is wood pellet burning only, no attempt should be made to burn any other fuel, including all types of coal, grain or seed. Under no circumstances should liquid fuels be added. It is not an incinerator and rubbish including painted, tanned wood and MDF should not be burnt in this appliance.

Any attempt is dangerous and will invalidate any guarantees immediately.

### **Technical data**

<b><u>All built to EN13240</u></b>	<b><u>DEFRA approved</u></b>
Efficiency	82%
CO concentration @13% Oxygen	0.1%
Fuel	Class A pellet 6-8mm diameter, see burner manual for details.
Weight in kg	680 kg
kW output intermittent	14kW, 4.5kW/hour max.
Air vent requirement	An air vent or direct connection to outside is required on new or refurbished properties.
Flue draught	12 Pascal's +- 4 Pascal's measured at the combustion chamber through door fixing hole.
Flue gas temperature Spigot Temp.	185 °C 241 °C
Flue size Min. chimney diameter Max. chimney diameter	125 (5") 125 (5") 150mm (6")
Minimum distance to combustible materials	300cm behind (2ft). 20mm at side (3/4") **
Max. Hearth temp. Min. Hearth thickness	<100 °C 12mm

**\*\*** Whilst you can reduce the side gaps right down because the LHS is the cool hopper and the RHS is the oven, we recommend a 50mm/2" gap to cupboards. A removable front fill piece can then be used to close the gap. This allows good air circulation and help when moving the cooker for any major maintenance.

Work tops can go up the cooker, but the top does get hot, so we recommend a 5mm minimum gap if granite is used and a 20mm gap if wood or Formica top are used.

**If noncombustible materials surround the cooker, e.g., brick, block, 'pink' plaster board (standard plasterboard is backed with cardboard and rated as flammable) then no gap is require behind or at the sides.**

## **Appliance Details**

Overall Size: Height (to hob)	910mm
Width (standard models)	1500mm
Depth (to towel rail)	720mm
Flue 5" and 500mm from RHS of the cooker, centre line 120mm from the rear surface	

Hotplates: 340mm diameter x 2 with centre

3 Ovens: Height	280mm
Depth	525mm
Width	355mm

Single electric induction hob, on LHS.

## **USER INSTRUCTIONS**

### **To light the cooker.**

Plug in or switch on the main power.

Press the start button on the control panel.

Turn the temperature dial to the desired temperature.

Ensure the clock is in the 'call for' mode.

General use:

Adjust time clock if fitted to the desired times, (usually the same as you central heating). Leave the cooker on e.g. 100C, the cooker will heat up to the temperature set and maintain that temperature whilst the clock calls for it. To cook just turn up to your desired temperature e.g. 180C and the burner will fire and take the oven up to that temperature. When you have finished with the cooker turn the oven back to previous setting e.g. 100C.

The cooler the outside temperature the more heat will be required in the kitchen, So in late spring early Autumn you might want to set the oven to just 50C, in early spring and late Autumn 100C and during those cold months Dec. Jan & Feb 150C. You can adjust the temperature on a daily basis.

In the summer, most people leave the cooker at 0C and use the induction hob and only turn the oven on when required.

### **Using your hotplates**

Your appliance has two hotplates, with a joint hotplate in the middle, protected with two insulated lids which should remain in a closed position when not using the hotplate. The lids can be raised independently if only using one hot plate. The hot plate temperature can be increased by turning up the oven temperature. The higher the temperature in the ovens, the hotter the hotplate will become.

The design of the hot plates is such that the left hand side will become the hottest, making this suitable for deep fat frying, shallow frying and boiling.

The surfaces of the hotplates are ground flat and it is therefore recommended that all utensils used have a solid, flat base to come in complete contact with the hot plate for efficient results.

### **Using your Ovens**

Your appliance has 3 ovens. The thermometer dial in the top oven door provides an indication to the top oven temperatures. This thermometer reading will reduce quite dramatically when the door is opened and only recover slowly when the door is closed. This occurrence does not mean that the oven temperature has reduced. The bottom ovens are warmed by the underside of the oven above. Depending on the control device setting and operational time, this oven will generally operate some 85 – 90°C below the top ovens. It may be used for small food cooking, biscuits, cakes etc but it is best used as a warming compartment.

**DO NOT USE ABOVE 220C**

## Chimney sweeping, servicing & maintenance

The ECO range pellet cooker requires regular de-ashing and servicing.

There are 3 levels of service, similar to a car:

1: De Ashing: approx. every 50 Hours or 150kg of pellets, service 1 on the control panel.

2: De coking and ring movement: approx. every 100 hours or 300kg service 2.

3: Preventative maintenance: approx. every 3,350 hrs. 5 years or parts failure.

As well as this your chimney should be swept at least once a year by a registered sweep, with a soft 5" round headed brush.

If the cooker has not been used for a prolonged period, in excess of 6 months, the chimney should be swept prior to use to check for blockages, rubble and debris blocking the flue ways.

### **1: De Ashing.**

There are 3 places that need to be checked and vacuumed out.

1. Remove soot door or flue balancer and drop the vacuum clean tube down to the base of the flue pipe. There is a soot trap there to allow accumulation of soot without blocking the flue. The vacuum cleaner will remove any ash or soot from there.
2. Unscrew the 2 screws holding the combustion chamber door on and set to one side. Remove the insulation board. Vacuum clean the soot around the combustion bowl.



3. Undo the 2 Allan key screws holding the main hob down.
  - a. Screw in the 2 handle provided.
  - b. Lift each side one at a time and slip the 2 pieces of ply supplied underneath.
  - c. Slid the hob plate forwards to allow you to reach behind and vacuum the top of the ovens.
  - d. Replace in the reverse order.
  - e. **DO NOT FORGET TO APPLY A LITTLE COPPER GREASE TO THE ALLAN SCREWS TO PREVENT THEM GETTING TIGHT.**
  - f. **DO NOT OVER TIGHTEN THE ALLAN SCREWS; YOU JUST NEED TO MAKE A COMFORTABLE SEAL ONTO THE ROPE SEAL.**

## 2: De carbonizing and ring movement.

After completing the above, use the Allan key supplied and a 10mm spanner remove the primary ring.

The ring should be inspected and if the holes are clogged up with clinker they must be cleaned out with a 4mm drill or file.

This can be done with the ring in place, but is more awkward to see the inner holes. A small screw driver or cold chisel can be used to knock of any accumulated clinker in the bowl around the screw. This can then be vacuumed out.

Once cleaned the ring should be replaced; being careful to return it to its original position with the larger top holes to the right hand side.

Do not over tighten the 8mm allen screws or it is more difficult to remove them next time, a little copper grease also helps.

ECO Range can supply cleaned service exchange units for £35.00 or a new ring if too damaged for £93.00.

## 3: Preventative Maintenance.

It is worth replacing some component which wear regularly or when one of them fails and the burner has to be removed. The labour cost of removing the burner justifies replacing other parts at the same time to ensure a reliable burner.

### Burner removal

Turn the power off and unplug the electric control panel.

The burner can either be removed from the LH Side or from the top LH Side.

Remove the side panel.

Remove the 4 bolts holding the tube on top of the pellet feed.

Undo the four 17mm bolts holding the burner in and slide the burner towards you.

### Top removal

Remove the flue pipe.

Lift off the whole of the black top.

Undo the 2 bolts holding the pellet hopper in place and lift out the pellet hopper.

Undo the four 17mm bolts holding the burner in and slide the burner left and out.

Unscrew the multipoint socket on the back of the burner and lift the burner right out of the cooker.

We suggest you refurbish the pellet burner with the following parts:

- |                                      |         |
|--------------------------------------|---------|
| a) Ignition element                  | £ 37.40 |
| b) Ball bearing on lower auger shaft | £ 8.90  |
| c) Gate wing seals                   | £ 29.00 |
| d) Optical guard                     | £ 20.00 |
| e) Level monitors set                | £ 33.00 |
| f) Red Gasket Burner-cooker          | £ 22.50 |
| g) Stocker tube sensor               | £ 7.50  |

This complete set can be purchased from ECO Range Cookers for £ 150.00 Inc. VAT.

NOTE; All solid fuel appliances produce considerably more Carbon Monoxide in normal use than oil or gas appliances. But the general 'smell' of the smoke or

exhaust is much stronger (with perhaps the exception of smokeless fuel) and more easily detected by a healthy person. Always use your appliance with the doors shut and look for telltale signs of excessive leakage. Smoke stains above the fireplace, smoke emitting around the door when running, strong smell of soot upstairs etc. There is no such thing as a gas tight chimney, but there has to be a negative pressure inside a chimney for it to draw oxygen through the fire box. Check the seals at the joints annually and re-fire cement as required, especially check the joint of the flue pipe to the chimney register plate. Hairline cracks are OK, but lumps of cement missing are a bad joint. A proper proprietary joint should be used here, as they are far superior to cement and rope seals.

Never block air vents internally and externally.

The surface of the appliance is hot in normal use; guards should be used when young children or infirm people are around.

Never modify or fit parts not recommended by the manufacturer to the appliance. Never use this appliance in the same flue as another appliance.

## **Installation Instructions**

When installing these appliances, all local regulations, including those referring to national & European Standards need to be complied with.

This manual covers the ECO Range wood pellet cooker appliance.

The nominal space heating output is: 4kW.

The above appliances must be installed by a HETAS registered installer and the installation registered with the local council.

Failure to comply with the above renders all guarantees and liabilities of the manufacturer null and void.

The manufacturer will not guarantee or accept liability for any problem that arises unless, a HETAS installation commissioning certificate has been completed and a valid receipt or proof of purchase is presented from the approved supplier.

The appliances should not be fitted closer than shown in the chart, from combustible materials, e.g. a wooden fire surround or stud wall.

When fitted against a wall made of combustible material e.g. a wooden stud wall with plasterboard, if the distance is less than the safe distance specified, extra non-combustible material of 75mm (min.) should be fitted behind the stove.

When fitted inside a masonry or similar non-flammable material recess, e.g., fireplace opening, there is no minimum distance; the gaps are only an aesthetic consideration.

## **Hearths**

The cooker should stand on a non-combustible hearth of minimum thickness 12mm (1/2"). This should extend a minimum 225mm (9") in front of the cooker. When the cooker is free-standing, the hearth should also extend a minimum of 150mm (6") either side of the cooker. The hearth must be capable of taking the load of the appliance. Suitable measures, (e.g. a load distribution plate) should be taken if it cannot take the load, to ensure stability.

The hearth should be flat and at the same height or slightly higher than the main floor. If tiles are added in front of the cooker afterwards, it is impossible to remove the cooker for any major maintenance. We recommend tiling the floor first before installation.

## **Air supply**

All hydrocarbon burning appliances require an oxygen/air supply.

If the chimney/cooker is to be fitted on an external wall the air supply can be taken straight from the outside. A 4" (100mm) diameter hole needs to be drilled in the correct place, 138mm above the hearth and the cooker 'manifold/extension air pipe' kit purchased and fitted. A proprietary grille is supplied with the kit, if not used, an air brick or non-closing vent should be fitted to ensure the air supply is not blocked in any way.

The manifold method of supplying air is always to be preferred as there will be no draught in the room especially when the cooker is not in use.

If the cooker is not on an outside wall or the direct air supply method cannot be used, an air vent must be supplied in the room in which the cooker is fitted. The sizes of the vent required is: 1650mm sq. (50mm diameter.)

Only permanently open vents can be used and consideration should be given to draught when the cooker is not in use. Site these vents carefully. The vent covers should comply with Building Regulations Part J and should be sited where they cannot be blocked.

Extractor Fans: These suck air out of the room and cause a negative pressure in the room so they must have their own air vent to counter this. Even when the air is taken directly from the outside using the manifold system a vent will be required for any extractor fan fitted in the same room or adjacent rooms. Great



care must be taken with restaurant/café kitchens which have professional levels of extraction.

## **Chimneys**

A chimney of minimum 5” diameter (125mm) and a minimum length of 4 meters is required, and it must comply with Building Regulations J. Never share the flue with another appliance.

Without a chimney to these specifications there could be insufficient draw on the chimney to pull sufficient oxygen through the appliance to make it burn properly.

If you live in a valley or are surrounded by tall trees or buildings you might experience down draught problems where the wind tries to stop the fumes rising up the chimney. An anti-down draught cowl might help, but anti-down draught cowls reduce draw, so will not work on single story chimneys and those with insufficient draw.

We recommend you seek the advice of a HETAS or NACE registered supplier and installer before purchasing any cooker or heating appliance.

We recommend any chimney larger than 200mm is lined using a Class I liner, and backfilled with insulation to Building Standard requirements. We recommend using the ECO Range register plate adaptor and adjustable vitreous enamel flue pipe which is designed for easy fitting.

## **Smokeless Zone's**

The ECO Range 3 oven pellet cooker is almost certainly the cleanest wood burning cooker in the world and so is DEFRA approved for burning wood in 'smoke less' zone in cities in the UK.

## **Commissioning of the ECO Range wood pellet fired cooker appliance**

On completion of the installation, when any fire cement or paint used has dried, the cooker can be turned on.

Please leave the instructions with the customer and inform them;

- 1/ when they first light the cooker, smoke will appear around the cooker and flue pipe with a strong acrid smell. This is normal and is the paint curing. If the cooker is fired properly for at least 2 hours this should not happen again.
- 2/ only top grade pellets should be used, preferable made from virgin soft wood. If hard wood pellets are to be use, a service technician with a gas analyser will be required to possibly adjust the air/fuel ratio.
- 3/ the hopper will require filling from between every 2 days to every month depending on the time of year/usage. Using the cooker as a room heater for long period will require more fuel, (but less of you use other heating fuel).
- 4/ the ash will require emptying about every 10 fills of the hopper. The cooker should be allowed to cool down for 8 hour (overnight) and the majority of the ash removed using the vacuum cleaner attachment provided.

### **Trouble shooting:**

In essence a wood pellet stove or cooker is a fairly simple, robust appliance, and they are not full of parts that fail easily & it is nearly always obvious if one of these parts has been broken or has failed.

Baffles are made of stainless steel or 'vermicuboard': compressed, expanded volcanic rock, a bit like chip board. If these crack, again it is not a major problem and no harm will occur as long as they haven't fallen out exposing the walls behind them. Of course they should be replaced if excessively cracked or broken, as soon as is possible and these parts all just slot into place. Spares can be ordered from the manufacturer or cut from a sheet of 'Skamolex' using a wood saw & the old broken baffle as a template.

If installed correctly running problems can only be caused by fuel or chimney problems.

Fuel should be the best Grade A pellets 6mm or 8mm diameter. These can be bought in bags but must be kept in a dry storage area and they will absorb moisture and swell up and turn back to sawdust.

Chimney problems divide into 3 clearly different sections:

#### **Lack of Draught, Down Draught or Excessive Draught.**

**Lack of draught:** A chimney is like a hot air balloon, the air inside wants to rise up as it is hotter than the air outside. The 2 things that determine the performance of a hot air balloon are the size of the balloon, which equates to the height and diameter of your flue, and the temperature of the air inside,

which equates to the quality of the chimney. If the pilot wants to go up, he turns the burner on and heats the air so it has more lift. If you have a large 'cold' chimney, as the smoke goes up it will cool and lose its buoyancy. This stops the rise and it is this rise or draw that removes the products of combustion. The pellet burner has a fan built in and, on initial lighting, for about 2 minutes the cooker can be under positive pressure and a small amount of smoke can be forced back into the ovens if they are left open at this stage. This is safe and clears as soon as the chimney warms a few degrees above ambient and then has a negative pressure or draw.

**Signs of lack of draw:** When, at all times, quantities of smoke come out joints and from the oven vents when the oven door is open.

**Solutions:** Check that the flue is not blocked in the first place. Line the chimney, insulate the chimney/liner. No cowls will increase draw, they all reduce it.

**Down Draught:** A roof is like the wing of an aircraft or the sail on a boat and causes pressure changes as the wind flows over and around it. To make matters worse, the surroundings also affect the flow and pressures. So if a chimney is not 'tall' enough it can end up in a high pressure zone, the air will then want to come down the chimney and out the back or front door, which can be at a lower pressure.

**Signs of a down draft:** When quantities of smoke come out joints and from the oven vents when the oven door is open, on certain days only when the wind is blowing from a particular direction. (Usually from the opposite side of the roof that the chimney is)

**Solutions:** Raise the chimney, more twin wall or taller pot. Cut down surrounding trees. Fit a 'Verdette' or spinning type of cowl.

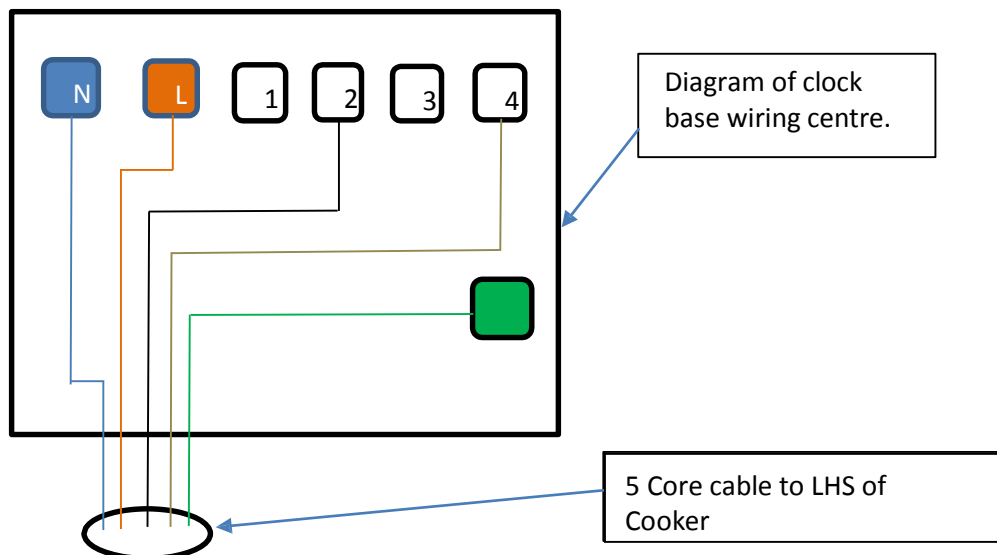
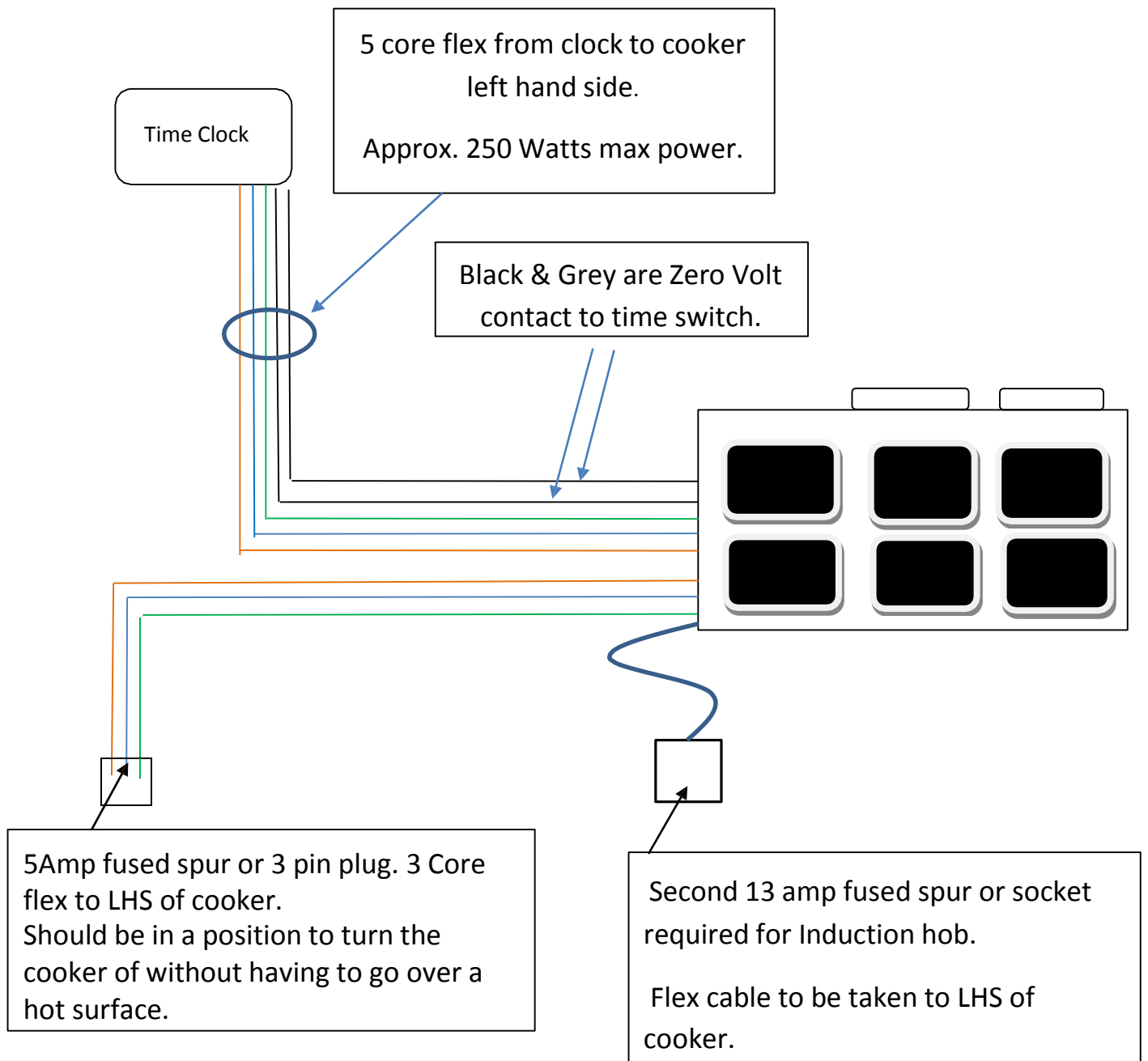
**Excessive Draught:** Check the flue balancer is not jammed and is moving freely.


The ECO Range Cooker is designed by Thornhill ECO Design Ltd, a designer company from Canterbury, UK, that specializes in efficient, clean & green cookers and stoves.

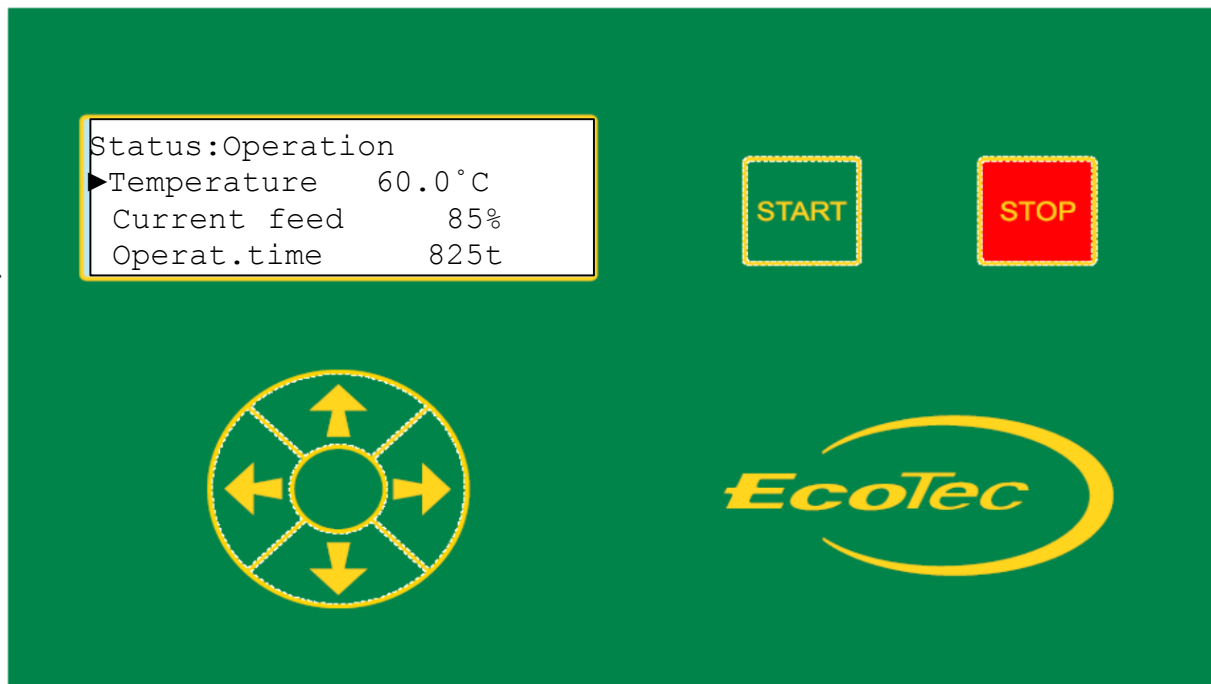
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# ECO Range Pellet fired cooker electrical installation diagram




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### Reading the control panel & Alarm/Fault finding:

The control panel can tell us a lot of what is happening and what any problem is. The following is a guide to the meaning of the Alarms as they appear on the control panel.

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**NB: To avoid hazardous situations, the power supply must always be switched off before touching any part of the equipment. Only authorised persons may carry out changes or repair the equipment.**


## 1. Introduction

This manual is not a complete manual for any of EcoTec's products. This manual concerns the control system 3006, which, among other things, is used for BioLine 20, BioLine 25 and BioLine 100.

## 2. Connection

### Incoming power supply


**IMPORTANT!** The plant must be installed and fitted with earth leakage circuit breakers (overload category III) and be fused with external fuse 10A. Ensure that the load at the outputs never exceeds the system's total maximum load for the outputs (2,000 W) and that each output is not loaded with more than 500 W.

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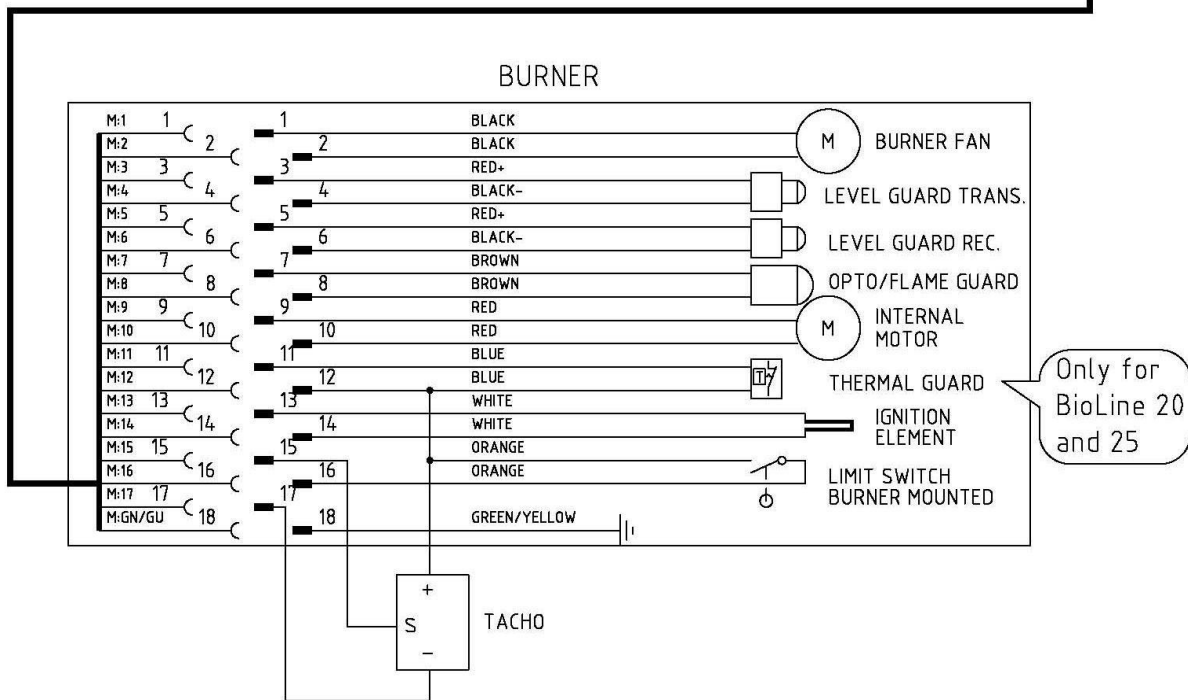
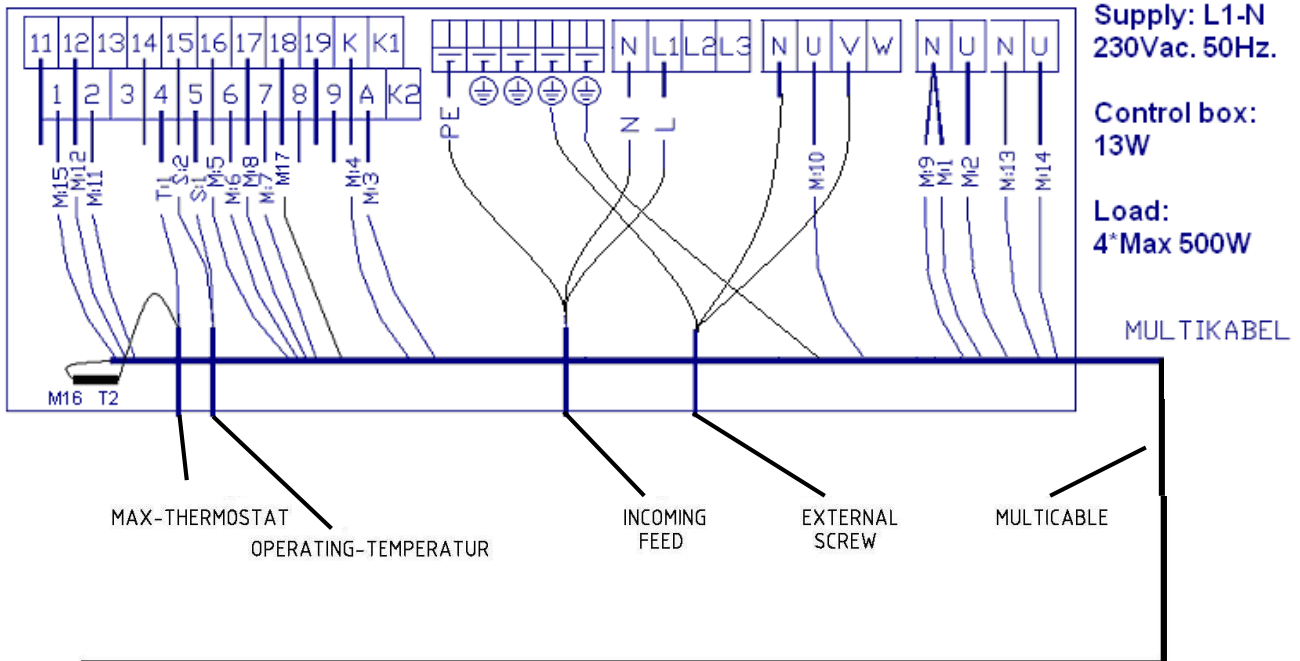
## 2.1. Connection table for 3006

Connection	Voltage (V)	Cable Part *)	Connection terminal board				Note.
			Supply	Stocker	Blower	Ign.	
COMBUSTION FAN	230 Vac	M:1			N		
COMBUSTION FAN	230 Vac	M:2			U		
LEVEL GUARD TRANSMITTER+	Signal+	M:3	A				
LEVEL GUARD TRANSMITTER	Signal	M:4	K				
LEVEL GUARD RECEIVER+	Signal+	M:5	16				
LEVEL GUARD RECEIVER-	Signal	M:6	6				
OPTICAL GUARD	Signal	M:7	7				
OPTICAL GUARD	Signal+	M:8	17				
INTERNAL MOTOR	230 Vac	M:9			N		
INTERNAL MOTOR	230 Vac	M:10			U		NB
THERMAL CONTACT BACK HEAT	Signal	M:11	2				
THERMAL CONTACT BACK HEAT TACHOMETER+, LIMIT POSITION, BURNER IN BOILER+	Signal+	M:12	12				
IGNITION ELEMENT	230 Vac	M:13				N	Present in BioLine 20 & 25
IGNITION ELEMENT	230 Vac	M:14				U	Present in BioLine 20 & 25
TACHOMETER	Signal	M:15	1				
LIMIT POSITION, BURNER IN BOILER	Signal+	M:16					T:2
TACHOMETER-	Signal-	M:17					
EARTH		M:18 GN/GU					PE earth-bar
MAX TEMP_N	Signal	T:1	4				
MAX TEMP_N	Signal+	T:2					M:16
OPERATING TEMPERATURE	Signal	S:1	5				
OPERATING TEMPERATURE	Signal+	S:2	15				
EXTERNAL START	Signal		3				OPTION
EXTERNAL START	Signal+		13				
INCOMING FEED (PHASE)	230 Vac	L		L1			
INCOMING FEED (NEUTRAL)	230 Vac	N		N			
INCOMING FEED (EARTH)		PE					PE earth bar
PE earth-bar				PE			
EXTERNAL FEED (PHASE)	230 Vac	L			V		
EXTERNAL FEED (NEUTRAL)		N			N		
EXTERNAL FEED (EARTH)		PE					PE earth bar
ALARM OUTPUT	Signal		K1				Potential-free
ALARM OUTPUT	Signal		K2				1A 30 Vdc


M:x = Multiconductor for burner  
T:x = Cable to Max. thermostat  
S:x = Operating temperature

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### CONTROL CABINET





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## 2.2. External feed

The external feed is connected as per the previous pages. If a three-phase motor is to be used, a converting unit is required to convert two-phase to three-phase. If a contactor is connected to the external feed output, a resistor must be connected parallel to the output to ensure that the contactor is released. We recommend using a 15 kOhm 10 W resistor (Article no. 1313-07 EcoTec). A complete unit can also be ordered from EcoTec.

## 2.3. Max. Thermostat

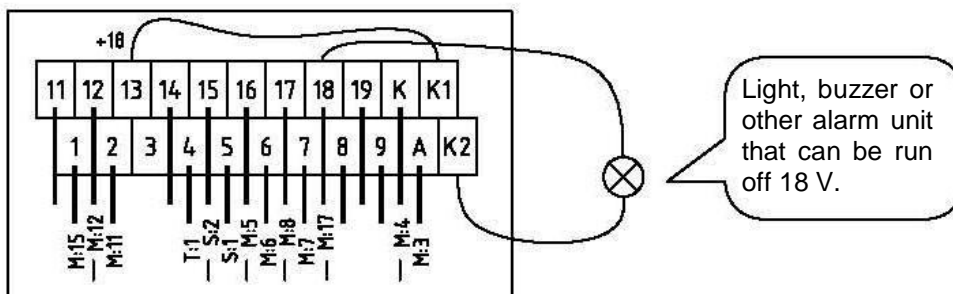
The max. thermostat cable is pre-installed on terminal boards 4 and 14 in the control system. This cable is connected to the system's max. thermostat. The max. thermostat must be equipped with a manual reset function, and the contact must be potential-free (dead) and normally closed (disconnects in the event of a fault). The max. thermostat is an important part of the safety system and must be connected.

## 2.4. Operating thermostat

The operating thermostat consists of a separate temperature sensor with cable. The thermostat is pre-installed on terminal boards 5 and 15 in the control system. The cable can be extended to up to 25 m (0.5 mm<sup>2</sup>) or shortened. The sensor should be fitted to plunge pipes for optimum temperature measurement. The operating thermostat must be connected in order for the burner to function as intended.

## 2.5. Alarm unit

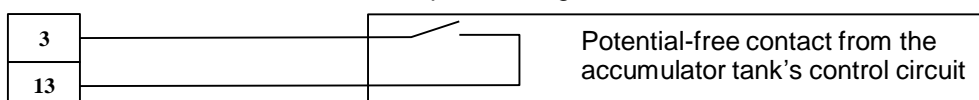
It is possible to connect an external alarm unit. This is done using the contacts K1 and K2. When the burner emits an alarm, there is contact between K1 and K2, which means that K2 has the same voltage as K1. By connecting various signals to K1, you can choose which alarm function you want to use. The diagram below shows what to do to get 18 V to an alarm unit when the burner emits an alarm.




NB: The load on the potential-free contact must not exceed 1A 30Vdc and the maximum load on connector 13 is X ampere or Y watts.

## 2.6. External start

When a burner operates alongside an accumulator tank, you would normally want to be able to start and stop the burner based on the tank temperature. An external control unit can be connected to terminal boards 3 and 13. The input is preprogrammed for this function. When the contact is connected, the burner comes on. When it is disconnected, the burner switches off. The burner's operating temperature is set so that the burner does not stop itself due to too high a temperature in the boiler. Maintenance firing is not possible with this function. Connection is as per the diagram below.

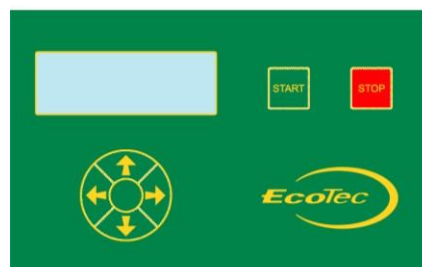


CaminaEcoTec Sweden AB

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### 3. Introduction to control systems

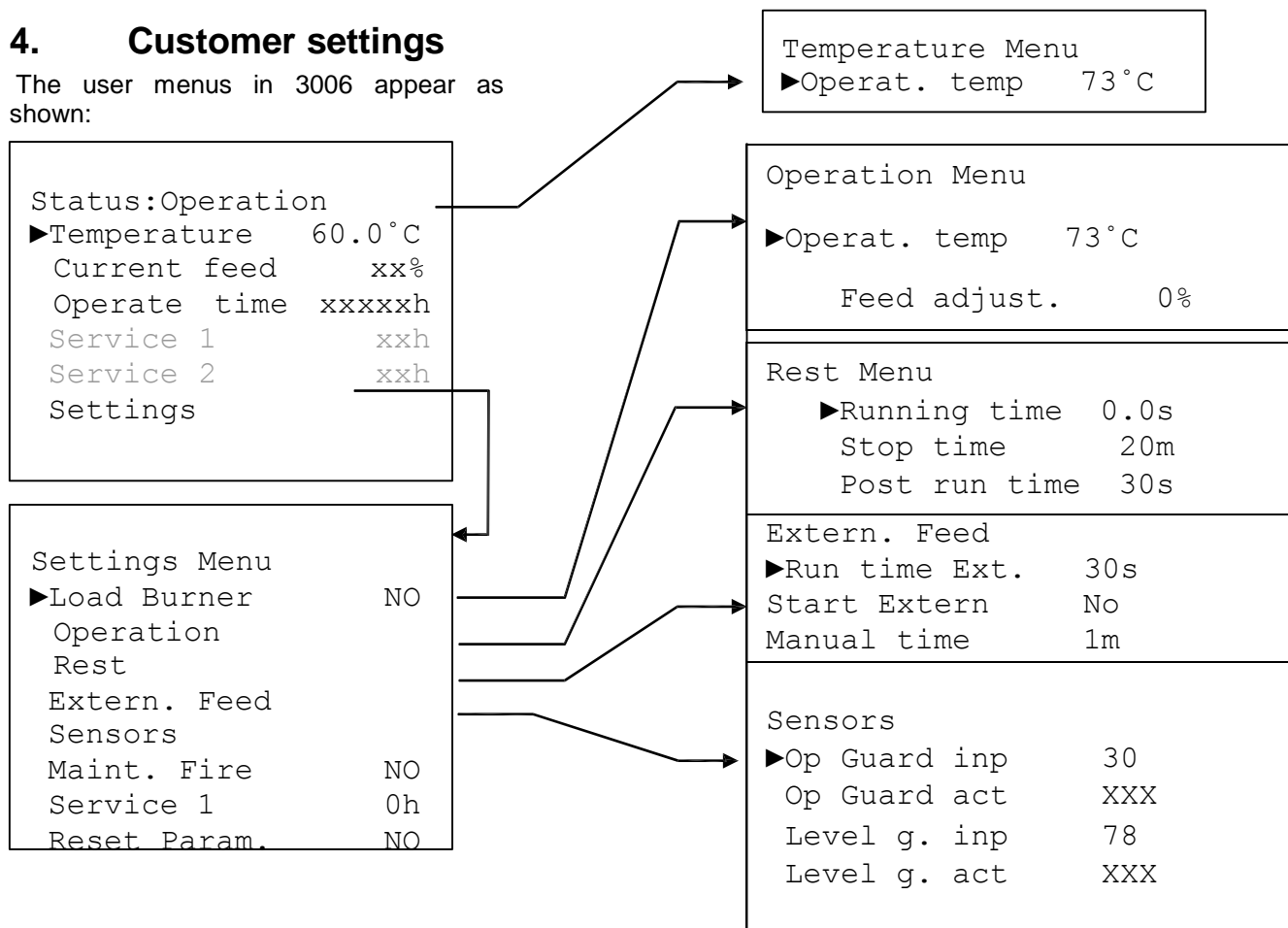
In the menus, the cursor ► is used to indicate which command line is highlighted. When a parameter is highlighted and can be changed, the cursor changes from ► to ▷.




Button	Description
START	The button used to start the burner.
STOP	The button used to stop the burner.
▲ (Arrow up)	Used to move up through a menu and to change a parameter to a higher value. <b>Also deletes information texts and alarm messages.</b>
◀ (Arrow left)	Used to return to a previous menu. Used when changing a parameter value to go back without changing the value.
▼ (Arrow down)	Used to move down through a menu and to change a parameter to a lower value.
► (Arrow right)	Used to select a submenu or a parameter and to confirm the changed value.

### 4. Customer settings

The user menus in 3006 appear as shown:



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## 4.1. Main Menu

This indicates the temperature of the pellet hopper. Arrow right ► is used to access operating temperature settings.

Shows how many hours the burner's internal motor has been running.

Operating hours (internal motor) until Service 2. Can only be set by retailer. Only visible if set above 0.

Indicates status.  
Stopped=The burner has stopped  
Start=The burner is starting up  
Operation=The burner is in operation  
Rest=The burner has stopped temporarily  
The burner can also indicate alarms, e.g.:  
ALARM: Ignition error=Burner could not start  
For other alarms, see the "Alarm indication" section.

Shows how much of the maximum fuel feed is being used.

Operating hours (internal motor) until Service 1. Can be set by customer or retailer. Only visible if set above 0.

Arrow right ► leads to Settings Menu.

```

Status: Operation
►Temperature 60.0°C
Current feed xx%
Operat.time xxxxxh
Service 1 xxh
Service 2 xxh
Settings

```

## 4.2. Settings Menu

Change to Yes to load burner manually. Used, for example, during resetting when the external screw is empty. Stop using the STOP button.

Go to the Rest Menu

Once maintenance firing is activated, the feed time in the Rest Menu is set to 30 sec. This means that embers in the burner do not go out, which means that the burner starts up without the ignition element.

Go to the Operation Menu

Go to the Extern. Feed Menu.

Go to the Sensors Menu


Counts down the number of hours until Service 1. Entering a value of 0 deactivates the function. Service 2 can only be set by the retailer.

Resets all parameters to those entered by the retailer.

```

Settings Menu
►Load Burner No
Operation
Rest
Extern. Feed
Sensors
Maint. Fire No
Service 1 0h
Reset Param. No

```

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### 4.3. Temperature Menu

Temperature Menu ▶Operat. temp 73°C	Shows the water temperature the burner is trying to maintain.
--	---

### 4.4. Operation Menu

Shows the water temperature the burner is trying to maintain.	Operation Menu ▶Operat. temp 73°C Feed adjust. 0%	Adjusts the feed relative to that entered by the retailer. If the parameter is set to 10%, the burner will feed through 10% more fuel than the basic setting.
---	---	---

### 4.5. Rest Menu


The burner's run time until the next stop command. If the value is 0, the burner will eventually go out completely and must then be restarted manually or with the ignition element.	Rest Menu ▶Running time 0.0s Stop time 20m Post run time 30s	Time between each feed in rest mode.
		How long the fan will run once the feed has stopped.

### 4.6. Extern. Feed Menu

How long the external motor will run once the internal silo is empty.	Extern. Feed ▶Run time Ext 30s Start Extern No Manual time 1m	Starts external feed without the burner being in operation. Only controls external feed.
		States how long the external feed will run if it is started as per the above.

### 4.7. Sensors

Value which the optical guard must exceed in order for the burner to recognise that it is running.	Sensors ▶Op Guard inp 30 Op Guard act XXX	Shows the value being registered by the optical guard when looking at the flame. During operation, this must exceed 300.
A low value means that no light is reaching the receiver (pellets present). A value above 94 means that light is reaching the receiver (no pellets present).	Level g. inp 78 Level g. act XXX	Shows the value that must be exceeded by the level guard in order for the silo to be regarded as empty.

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## 5. Advanced settings

In order to be able to access this menu structure, you must first log in. Login is performed by pressing Arrow left, Arrow right and the Start button all at the same time. See below.

- Press and hold ◀
- Continue to press ◀ and then press both ▶ and START
- The display switches to a login menu.

```

Restricted Area
▶Password:*****
PW No:      XXXXXXXXXXX

```

To enter your password, press ▶. The cursor moves to the first \*.

To change a value, press Arrow up ▲ or down ▼. Each time you press an arrow, the value will increase or decrease by one point. Once the correct figure has been entered, wait 1-2 seconds for the cursor to move to the next \*. Once the correct password has been entered, press Arrow right ▶.

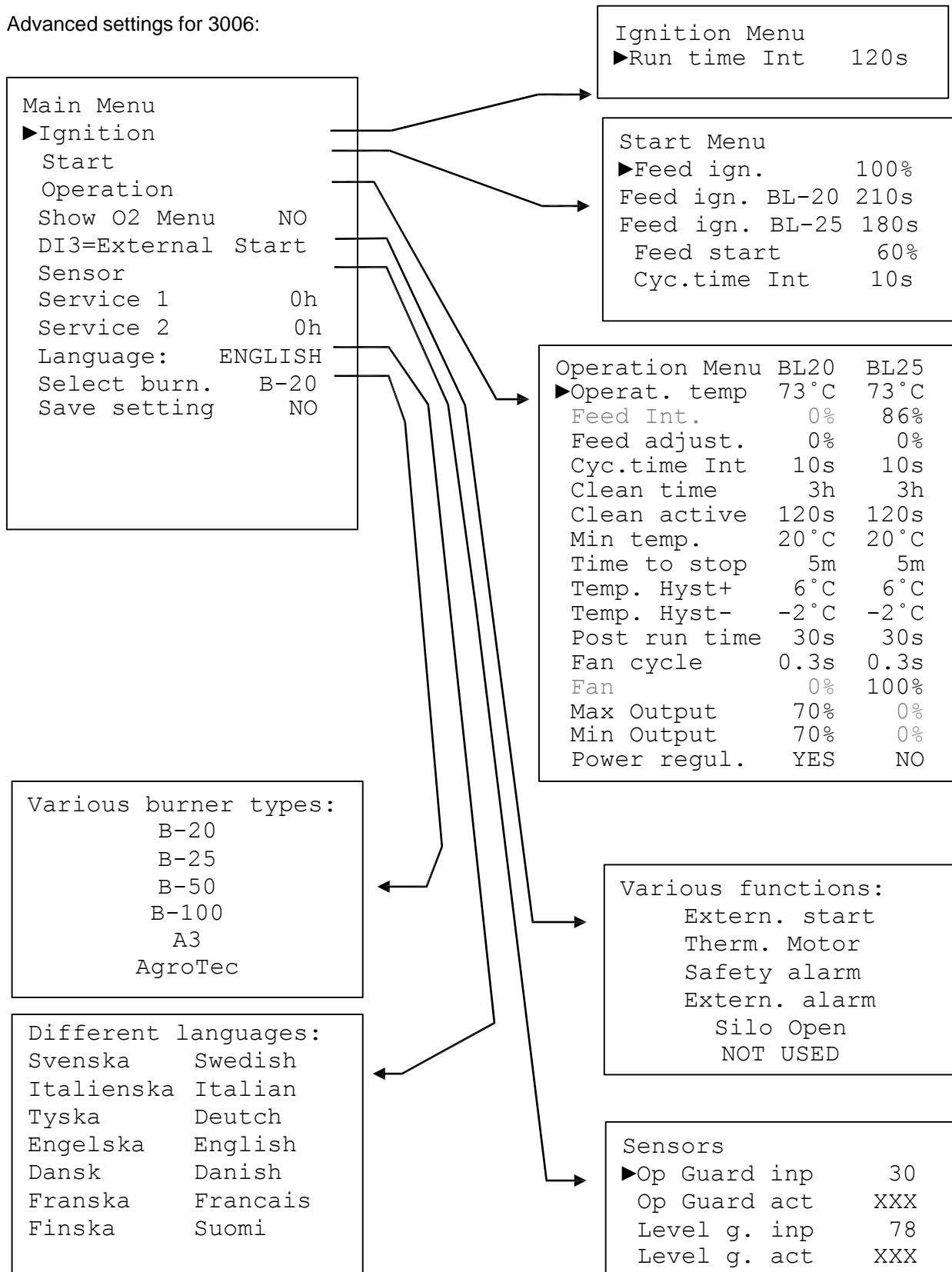
### The password for advanced settings is: 111

NB: If an incorrect password is entered five times in a row, the login function will be blocked within the next 15 minutes. This restriction is lifted automatically after 5 hours. The function can also be unlocked using a PUK code available on request from EcoTec. The control system functions as normal even if the login function has been blocked.

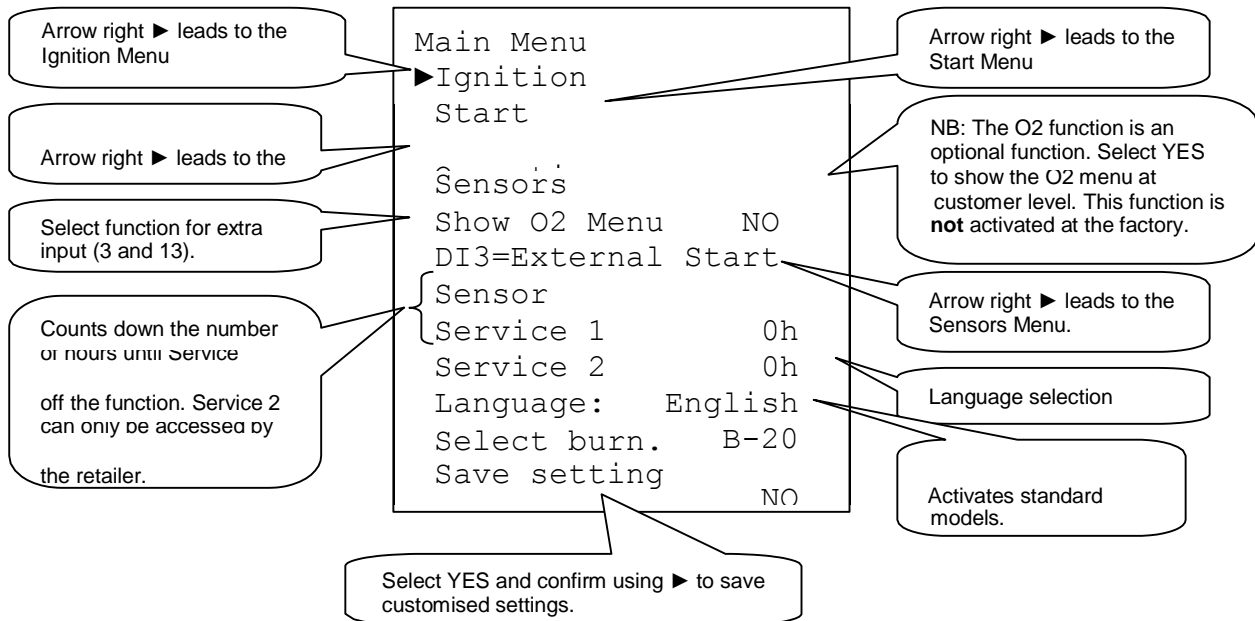
You can exit the advanced settings menu in the same way as all the other menus by pressing ◀. If no buttons are pressed for approx. 5 min, the display switches back to standard mode.

When altering parameters, we recommend that the control system be in stopped mode.

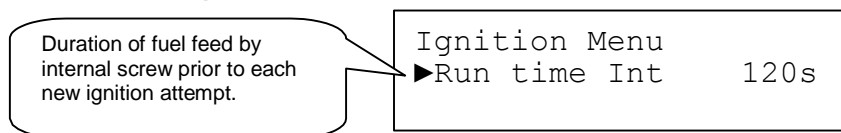
Advanced settings for 3006:



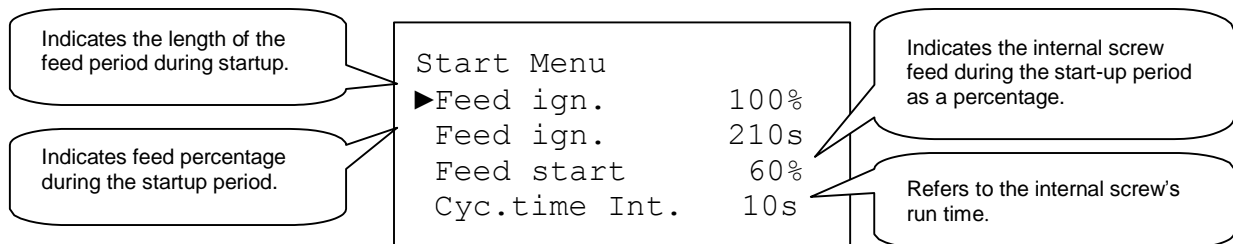
## 5.1. Main Menu




## 5.2. Ignition Menu

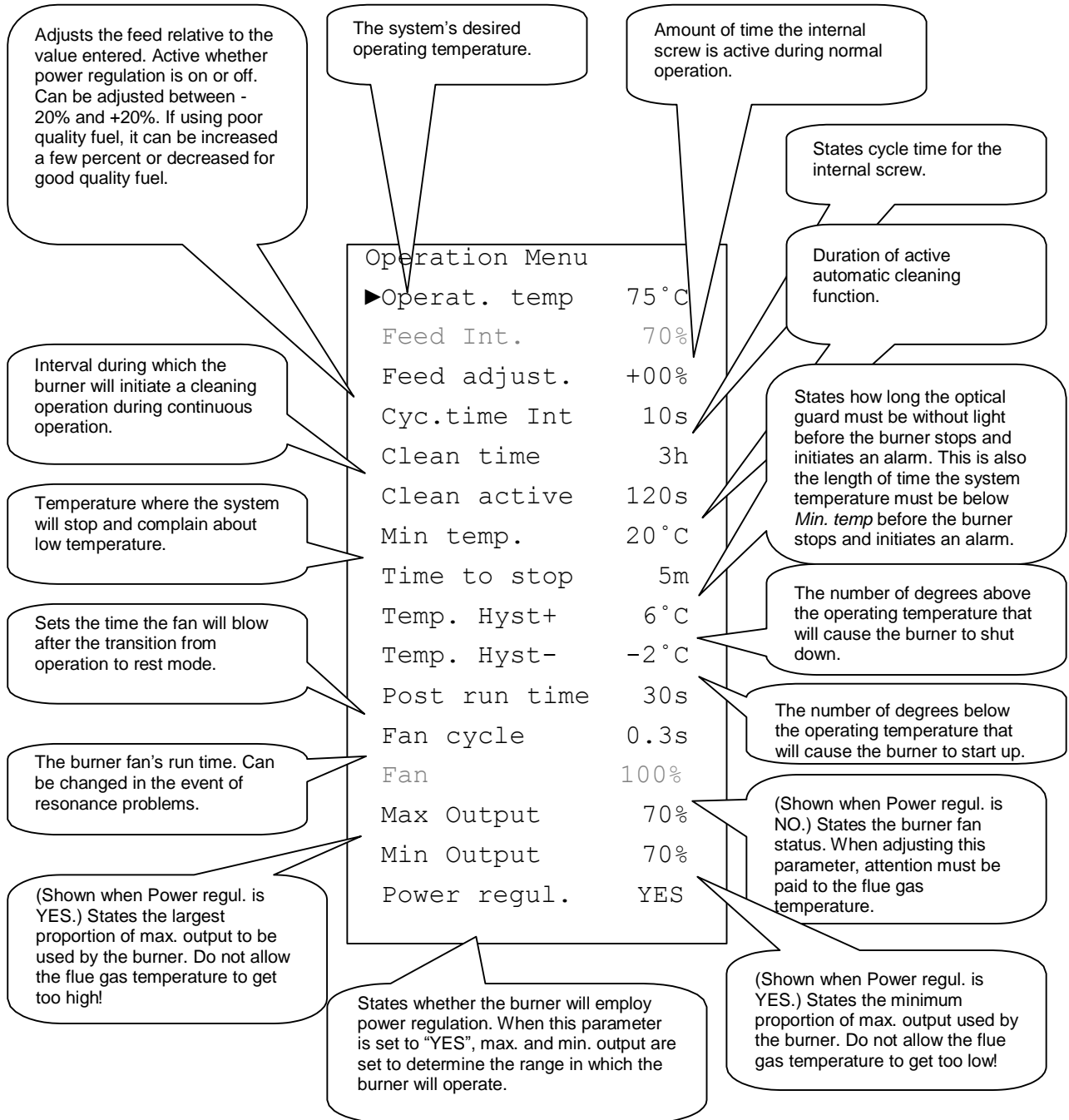


## 5.3. Start Menu




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## 5.4. Operation Menu

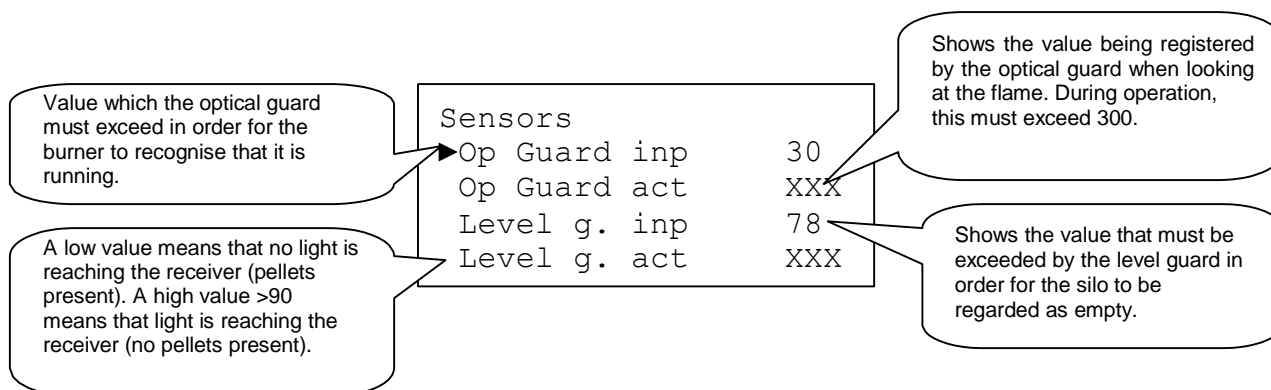


REMEMBER TO CHECK THE FLUE GAS TEMPERATURE FOR BOTH  
MAXIMUM AND MINIMUM OUTPUT.



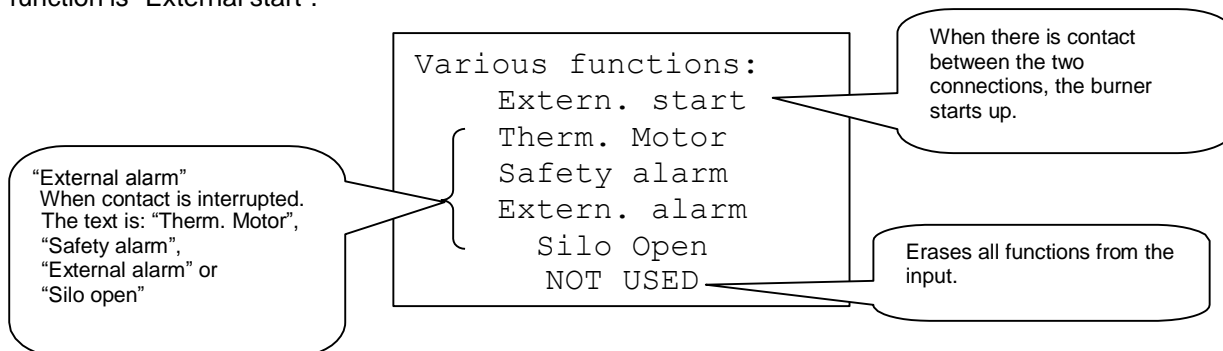
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## 5.5. Sensors



## 5.6. Various functions

This menu allows you to choose a function for one of the inputs (connection 3 and 13). The standard function is "External start".




## 5.7. Languages

Select the language you want to use. Your choice of language will affect the menu system for both basic settings and advanced settings. The languages available vary depending on the market in question.

## 5.8. Burner types

The control cabinet can be used to house several EcoTec products. Having selected a burner, all standard settings applicable to that burner are entered.

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## 6. Power regulation

The burner's factory setting (BioLine 20) is to use power regulation. This means that the burner operates continuously between "Max. Output" and "Min. Output". The factory setting is for both "Max. Output" and "Min. Output" to be set to 70% (14 kW for BioLine 20), which means that the burner cannot actually use power regulation. In this mode, the output range can be widened by increasing "Max. Output" and reducing "Min. Output". ALWAYS check the flue gas temperature and combustion at the lowest and highest point to avoid poor efficiency and/or damage to the chimney.

When power regulation is activated, the burner is controlled by changes in the temperature. If the temperature drops quickly (someone uses the shower), the burner will work harder. However, if the temperature is high, power is reduced to maintain the temperature.


Power regulation is based on standard quality pellets, which means that some adjustment may be required to achieve optimum combustion. This adjustment is made using the parameter "Feed adjust.", which can be accessed by both the retailer and the customer. This parameter alters the amount of fuel fed into the burner.

If power regulation is not used, "Feed Int." and "Fan" are set separately. In this mode, the customer can also use "Feed adjust." to make slight adjustments.

Output (BioLine 20)	Fan %	Feed Int. %
20 kW	100%	100%
18 kW	90%	90%
16 kW	80%	80%
14 kW	70%	70%
12 kW	65%	60%

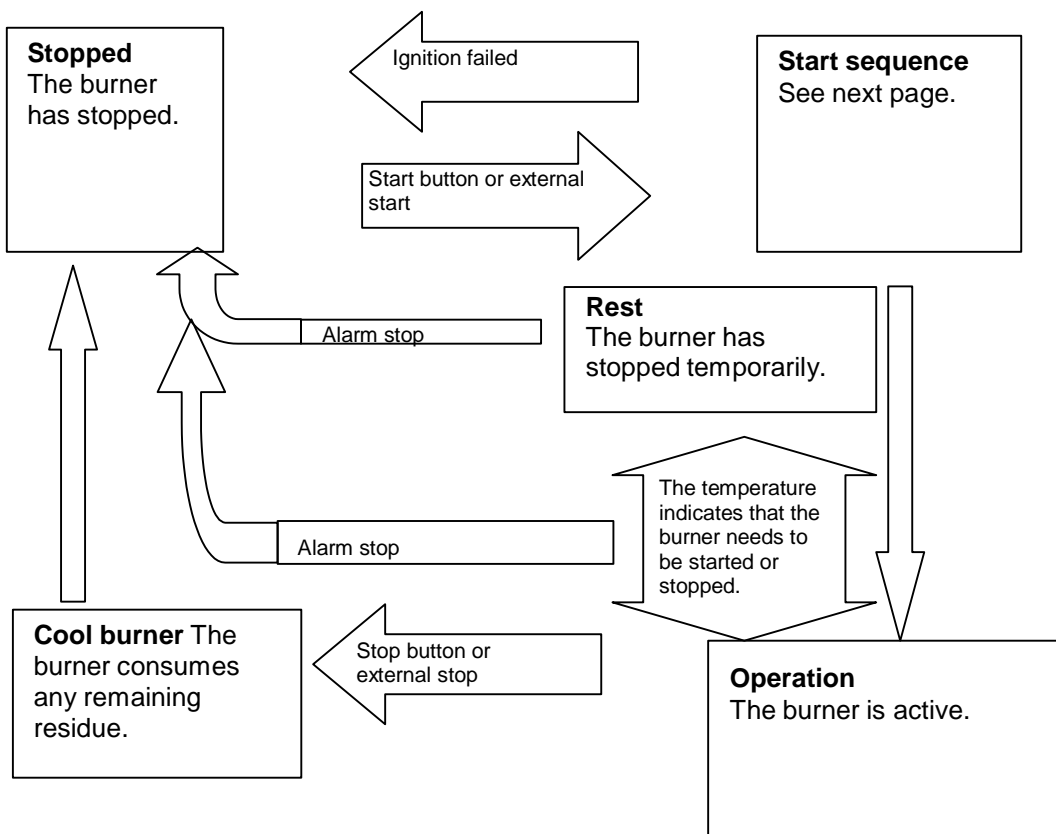
Entering a lower output figure means there is a risk of deterioration in combustion, as the physical area in the burning cup is too great. There is deterioration in the fuel-air mix.


Output (BioLine 25)	Fan %	Feed Int. %
25 kW	100%	86%

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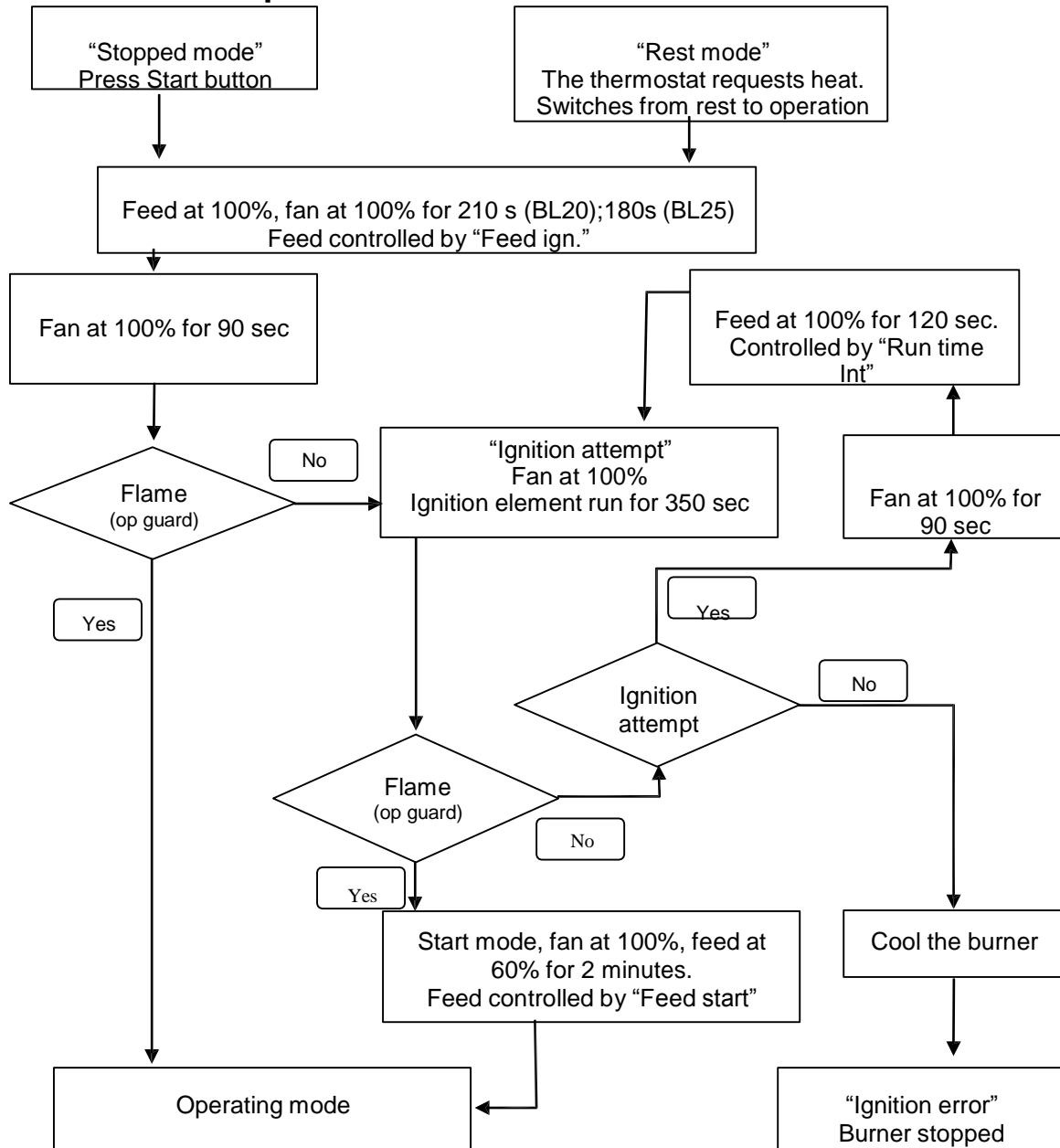
## 7. Operating modes


The control system switches between a number of different operating modes. These are shown in the following diagram:



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## 7.1. Start sequence



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## 8. Alarm indication

The table below gives a very short description of possible error messages displayed by the system. For more information on how these errors can be corrected, refer to the product manual for the model to which the 3006 control system is connected.

Alarm	Description
ALARM: Safety alarm alt.1: Max. thermostat	The burner has stopped because the max. thermostat has been triggered. The burner can be restarted using START once the max. thermostat has been reset. When the max. thermostat is reset, the alarm can be removed with ▲.
ALARM: Safety alarm alt.2: Burn. NOT fitted	The burner has stopped because the burner and boiler have separated. The burner can be restarted using START once it has been correctly re-installed. When the sensor is reset, the alarm can be removed with ▲.
ALARM: Combustion fan	The burner has stopped because the tachometer has indicated that the combustion fan has stopped. The burner can be restarted using START once the fault has been dealt with. Alarm texts are erased using ▲.
ALARM: Back heat	The burner has stopped because the thermal contact on the input feed pipe has been triggered. The internal motor runs continuously for 15 min. The burner can be restarted using START once the thermal contact has been reset. When the thermal contact is reset the alarm can be removed with ▲.
ALARM: Min. Temp. Stop	The burner has stopped because the boiler temperature has dropped below the set minimum value. The burner is restarted using START. Normally occurs with new installations when the system has just been filled with cold water. Alarm texts are erased using ▲.
ALARM: Ignition error	The burner has stopped because a set number of ignition attempts have failed (basic setting = 3 attempts). The burner can be restarted using START once the fault has been dealt with. Alarm texts are erased using ▲.
ALARM: Fire burned out	The burner has stopped because the fire has gone out. The burner can be restarted using START. Alarm texts are erased using ▲.
ALARM: Pellets Failure	The burner has stopped because the external feed has not supplied any fuel within the specified period. The burner can be restarted using START once fuel has been replenished and supplied to the burner. Alarm texts are erased using ▲.
ALARM: External alarm ALARM: Therm. motor ALARM: Safety alarm ALARM: Silo open	<b>NB: Optional! (Depends on setting under "Various functions"/"DI3")</b> The burner has stopped because an external unit (e.g. a smoke detector) has been triggered (no contact between 3 and 13). The burner can be restarted using START once the fault has been corrected. Alarm texts are erased using ▲.

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## 9. Reprogramming

**WARNING! The software upgrade is made with the main supply turned on. Avoid contact with fuse holders and other voltage carrying parts.**

If necessary, the 3006 unit can be upgraded. This is possible with the help of a small programming module available from EcoTec. Reprogramming is completed as follows:

1. Remove the small protection devices and then unscrew the large front panel.
2. Connect the module as shown in the picture below (JP1).
3. Press the button on the module. This should start to flash (green). Wait until the light goes out (approx. 1 minute).
4. Disconnect the power, remove the contact and replace the cover.
5. Reconnect the power again. Check that the correct version number is displayed when the unit starts.

Errors during the software upgrade are indicated by a red light on the programming module. The most likely errors are poor connection or a bad battery.











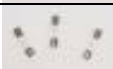


Fuse to control which is not approved to EN 15-270, (before 2009 v.39) is T250mAL-250V  
 Fuse to control who is EN15-270 approved (after 2009 v.40), is T100mAL-250V to control system with serial number 10500047 or earlier.



Fuse (1) to control which is approved to EN 15-270, with serial number 10,500,048 or later is equipped with a fuse that protects the control board on the ignition element connecting. The fuse is on the T 3.15 A 250 VAC.  
 Fuse (2), to control which is approved to EN 15-270, with serial number 10,500,048 or later is T100mAL-250V.

Catalogue Of Components

Product	Item No.	Item Name	Price In GBP incl VAT + P&P
<b>BioLine 20 Burner</b>			
	3700-15	Burner BL20 -15 package, incl control box BioLine and install equipment.	
<b>Screw and auger-packages</b>			
	7101-02	Motor 230 VAC and gear 5 rpm, incl. Cable (for up to 3 m straight length of auger).	
<b>Spare parts when doing installation. (If it's not included in the package you have ordered)</b>			
	1-14-5048	Seal BioLine 20-25, A3, Tyr and D1.	
<b>Optionals AgroLine</b>			
	1-31-5042	Motor 5 rpm long axle, AgroLine 20 & 40, counter-clockwise.	
	1-91-8023	Control panel AgroLine/A3.	
<b>Spare Parts</b>			
	1200-03	Gate wings/seal for rotary feed valve, 4 pieces A3-BioLine 20.	
	1315-00	Level monitor, BL=rec, WH-transmitte.	
	1-14-8002	Level monitors conversion kit, including terminal block (chock) excl 1315-00.	
	1312-01	Back heat thermostat 50 for Tyr (Convection fan).	
	1-1310-01	Optical guard A3, BL20, Tyr.	
	1-91-6011	Ignition element BioLine 20.	
	1320-00	Fuse 400 mAmp.	
	1320-01	Fuse 2 Amp.	
	1201-15	Fan with Tachometer for BL20 - 25, A3 BL20, EcoNom.	

	1216-10	Ball bearing A3, BL20, BL50, B3.	
	1-14-7001	Internal screw BioLine 20.	
	3214-00	Primary ring A3 15 kW.	
	3206-01	Secondary Air Pipes A3 20 kW.	
		Lid rope.	
		Oven thermostat.	
		Overheat indicator.	
		Lid liner.	
		Oven rack.	
		Oven insulation board.	
		3mm and 5mm Allen keys.	
		Silicone fireproof sealant.	
		Copper Ease anti-seizure compound.	