

**BIOMASS HEATING SOLUTIONS** 

## Compact pellets

## Instruction Manual English

## Models

# Compacta 18 kW Compacta 24 kW

Be sure to read these instructions carefully before installing, using and servicing the unit.

The product is supplied with this instruction manual.

#### Thank you for purchasing a SOLZAIMA unit.

#### Please read this manual carefully and keep it for future reference.

\*All the products comply with the requirements of the Construction Products Regulation (Reg. EU no.305/2011) and is certified with the **CE** conformity marking;

\* Solzaima's Compact pellets are manufactured in compliance with the EN 14785:2008 Standard

\* SOLZAIMA shall not be liable for any damages to units not installed by qualified personnel;

\* SOLZAIMA shall not be liable for any damages to units not installed or used in noncompliance with the instructions included in this manual;

\* All installation, operation and servicing procedures performed to the unit must comply with any local regulations, including but not limited to applicable national and European standards;

\* If you need assistance, please contact your unit's supplier or installer. You must have the compact pellet serial number, located on the identification plate affixed on the unit's rear panel and on the sticker on the plastic cover of this manual ready.

\*The technical service must be performed by the unit Installer or Supplier, except on situations where the assessment performed by the installer or service engineer determines that SOLZAIMA should be contacted, if required.

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#### **About Solzaima**

Solzaima's vision has always been to provide the cleanest, renewable and more cost-effective energy possible. This is why for more than 35 years we've been dedicated to manufacturing biomass heating units and solutions.

As a result of the persistence and unconditional support from a network of partners, Solzaima is currently the leader in biomass heating units manufacturing, supported by its range of central heating units with back compacts, compact pellets and free standing fires.

We deliver biomass heating units to approximately 20,000 homes every year. This effectively demonstrates consumers' interest in more ecological and economic solutions.

Solzaima has been awarded Quality certification under ISO9001:2008 and Environmental certification under ISO14001:2004.

## 1. Package content

Solzaima ships the unit with the following components:

- Compacta 18 kW or Compacta 24 kW
- Instruction manual
- Power cable

#### 1.1. Unpacking the compact

When unpacking the unit, please refer to the illustrations below. First remove the retractable bag covering the cardboard box (Figure 1-a). Pull the cardboard box out (Figure 1-b) by lifting it and then remove both the bag covering the compact and the styrofoam plates. Finally, unscrew the four pieces securing the unit to the wood pallet (Figures 1-c and 1-d).





c) d) Figure 1 – Unpacking the compact

## 2. Safety precautions $\triangle$

Solzaima shall not liable for any damages to the unit caused by failure to comply with the specified precautions, warnings and operating procedures.

Wile units manufactured by Solzaima are easy to operate, special attention was given to their components to prevent accidental damages to users and installers.

The units must only be installed by an authorised engineer, who should supply the client with a relevant statement of conformity and who shall be liable for the final installation and consequent product good operating conditions.

This unit must be used according to its intended use as specified by the manufacturer. The manufacturer excludes all contractual or non-contractual obligations regarding damages to people, animals or property arising from the unit's misuse, faulty installation or servicing procedure.

After removing the packaging, verify the contents to check their integrity and completeness. If the contents of the package do not correspond to the items listed under 1, contact the sales representative from whom you purchased the unit.

The complete set of parts provided with the unit guarantees its operation and energy efficiency; these parts should only be replaced with original parts provided by an <u>authorised technical assistance centre.</u>

The unit must be subject to maintenance at least once a year by the installation engineer.

This manual is provided with the product. Please keep it close to the unit.

#### 2.1. For your safety, please remember:

• The compact pellet is a biomass heating unit. Be sure to carefully read and understand the information contained in this book, before handling or operating the unit;

• Make sure the hydraulic circuit is correctly assembled and connected to the water supply system before turning on the compact pellet;

• The compact is not intended for use by children or persons with a physical, sensory or mental handicap, unexperienced or unaware of its proper use, unsupervised or not instructed concerning the use of the unit;

• Do not touch the compact when barefoot or any part of your body is wet or humid;

• Do not tamper with any safety or adjustment features of the unit without the manufacturer's authorisation;

• Do not cover or reduce the size of the aeration vents existing near the installation area;

• The compact pellet needs air circulation for proper combustion, so possible air tightness of the location or any existing air extraction sources in the room may prevent the unit's proper operation;

• The existence of aeration vents is a requisite for proper combustion;

- Do not leave the packing materials near children;
- During the unit's normal operation do not attempt to open the compact's door;
- Avoid direct contact with parts of the unit that overheat during operation;
- Check the fume duct for blockages before turning on the unit after a long period of inactivity;

• This compact pellet is intended for residential use in a protected environment. The unit might get turned off by any safety systems installed in the household. If this occurs, contact the technical assistance. Under no circumstances should you disarm the safety systems;

• The compact pellet is a biomass heating unit equipped with a fume exhaustion system powered by an electric exhauster. The occurrence of any power failure during its use may prevent the fume exhaustion thus causing the room to be filled with smoke. For this reason, you should have a natural fume exhaustion system, like a chimney, installed;

 Solzaima offers you an optional safety system which allows the compact unit to be connected to a UPS to allow that during any power failure the fume exhaustion system will still operate until complete exhaustion of all compact fumes;

• If you intend to use the compact unit unsupervised or while you are away from home, you should use the above safety system for total safety during any power failure;

• During operation, NEVER turn off the compact pellet by unplugging the power cord from the wall socket. The fume exhaustion system on the compact pellet is power-operated so disconnecting the power plug will prevent the exhaustion of combustion fumes;

• Before performing any maintenance or assistance to your unit, disconnect it from the power mains. Before performing any of these operations, allow the unit to cool down completely (if previously operating);

• Never touch the interior of the compact when connected to the power mains;

• For this compact, the maximum setting for the water temperature that can be specified by the user (water set-point temperature) is 85°C. If a temperature of 90°C is reached, the compact automatically turns off causing the corresponding alarm to go off.

Easturas	Compact	Compact	t Units	
reatures	C18 kW	C24 kW		
Weight	230	232	Kg	
Height	1305	1305	mm	
Width	667	667	mm	
Depth	744	744	mm	
Fume discharge pipe diameter	100	100	mm	
Reservoir capacity	60	60	kg	
Maximum heating capacity	410	523	m³	
Maximum overall thermal power (air/hydro)	18	23	kW	
Minimum thermal power (air/hydro)	6,5	6,5	kW	
Minimum fuel consumption	1,6	1,6	kg/h	
Maximum fuel consumption	4,5	5,8	kg/h	
Rated electrical current	134	134	W	
Electric power at start-up (<10 min.)	434	434	W	
Rated voltage	230	230	V	
Rated frequency	50	50	Hz	
Thermal yield at rated thermal power	89,6	89,3	%	
Thermal yield at reduced thermal power	91,8	91,8	%	
Combustion gas flow (max.)	19	21	g/s	
Combustion gas flow (min.)	10	11	g/s	
Max. gas temperature	148	172	°C	
CO emissions at rated thermal power	0,009	0,014	%	
CO emissions at reduced thermal power	0,038	0,038	%	
Draught in the chimney	12	12	Pa	
Compact's water volume	22	22	L	
Fume extractor noise emission	49,1	49,1	dB(A)	

## 3. Technical specifications

Table 1 – Technical specifications

The tests were performed using wood pellets with a heating capacity of 4.9 kWh/kg. The above information was obtained during product homologation tests performed by independent laboratories accredited for pellet unit tests.



Figure 2 - Pellet Compacta - Measures



Figure 3 - Pellet compacta - Hydraulic connections

## 4. Installing the compact pellet

Before installing the unit, please perform the following steps:

• When receiving the package, inspect the product to check for completeness and any signs of damage. Any damages or defects should be acknowledged before the unit is installed;

• The compact has four adjustable feet at the base which allow for an easy setting of the height when the unit is installed on a non flat surface;



Figure 4 - Adjustable feet

• Remove the instruction manual from the package and hand it over to the client;

• Connect the combustion gas outlet to the fume exhaustion duct going out of the building (through a chimney, for instance) using a 100mm-wide piping – check the diagrams under section 4;

• If using a tube for admission of external air for combustion, this tube must have a maximum horizontal length of 60cm, straight and with no elbows;

- Perform the hydraulic system installation (please refer to section 4.5);
- Connect the 230 VAC power cable to a grounded wall power socket;

• The remote control of the unit includes a programmable thermostat. As an option, a conventional external programmer may be used (not provided with the unit) to automatically setup the unit's operating periods.

#### 4.1. Installation requirements

Figure 5 specifies the minimum separation distance between the compact pellet and particularly flammable surfaces.

The top of the compact must be separated at least 100cm from the ceiling, especially in rooms with ceilings consisting of flammable materials.

The base supporting the compact cannot be made of combustible material, so make sure you always put in place an adequate protection.



Figure 5 – Minimum separation distances from all surfaces: a) top view of an installed unit; b) side view of an installed unit

#### 

Keep combustible and flammable materials away from the unit, at a safe distance.

#### 4.2. Installation of ducts and fume exhaust systems:

• The gas exhaust pipe must have been designed for this purpose, in compliance with local requirements and in accordance with any existing applicable regulations.

• M Important! An inspection T-tube with airtight lid must be attached to the outlet of the unit's exhaust pipe to allow for the regular inspection of the system or release of heavy dust and condensates.

• As shown in Figure 5, the assembly of the exhaust pipe must include inspection couplers to allow access for cleaning and maintenance operations.

- Under normal operating conditions, the combustion gas exhaustion should create a draught of 12 Pa one meter above the chimney neck.
- The compact should make exclusive use of the chimney.
- All pipes on the exterior to the installation location must have an internal diameter of 100mm and double stainless steel insulation.

• The fume exhaust pipe may generate condensation, so we recommend that the appropriate systems for collecting condensates should be installed.

#### 4.3. Installation in the absence of a chimney

The installation of the compact pellet in the absence of a chimney should be performed as shown in Figure 6, by directing the fume exhaust pipe (with a minimum inner diameter of 80mm for the air model and 100mm for the water model) straight outwards and onto the top of the roof.

Double-wall stainless steel insulated pipes must be used and these pipes must be properly fastened to avoid condensation.

The installation of an inspection T-tube at the base of the piping must be considered to allow for the performance of periodic inspections and annual maintenance, as shown in Figure 6. Figure 7 shows the basic requirements for installing the compact's flue pipe.



Figure 6 – Side view: installation with a chimney with inspection coupler.





b)



Figure 7 – Examples of standard installations.

A Failure to comply with these requirements may prevent the correct operation of the compact. Follow all the instructions shown on the diagrams.

Because the compacts operate with the combustion chamber in draught it is an absolute requirement to install a fume exhaust pipe to allow for the proper extraction of the combustion gases.

**Fume duct materials:** The tubing must be made of 0.5mm thick rigid stainless steel, use with pipe fittings to attach different sections and accessories.

**Insulation:** The fume ducts must be double-wall and properly insulated to make sure that fumes do not cool down going outwards, which would cause inadequate circulation and condensation that may damage the unit.

Out T-tube: Make sure you attach to the compact output a fitting T-tube.

**Anti-downdraught terminal:** An anti-downdraught terminal must be installed to avoid the backflow of fumes.

**Draught in the chimney:** The following figures show three standard diagrams containing the correct length and diameter specifications. Any other type of installation that you choose to perform must guarantee a draught of 12 Pa (0.12mbar) measured at maximum heat and power.

Ventilation: For the compact's correct operation it is necessary to have an air inlet with a minimum section of  $100 \text{ cm}^2$  available at the installation location, preferably near the rear panel of the unit. The compact is equipped with a round pipe ( $\emptyset$  50mm) that may be connected to the exterior of the house.

#### 4.4. Installation with a chimney

As shown in Figure 8, the  $\emptyset$  100mm exhaust pipe of the compact pellet is installed directly on to the chimney. If the chimney is too large, we recommend that you attach an  $\emptyset$  80mm pipe to the fume outlet.

You should also consider attaching a T-tube to the base of the pipe to allow for periodic inspection and annual maintenance, as illustrated in Figure 8.



Figure 8 – Side view: installation with chimney with inspection coupler.

We do not recommend that you use the compact in rough weather conditions that may seriously impact the draught (particularly with very strong winds).

If you do not use the unit for a long time, check it to make sure that the flue pipes are clear before lighting the fire.

#### 4.5. Hydraulic installation

\* Chapter 12 (installation diagrams) contains the optional connection diagrams for central heating installations, with or without water heating for household use;

\* The compact pellet is equipped with a circulation pump, an expansion vessel (6 litre volume in the compacta 18kW model) or 10 litre volume (in the compacta 24kW model) and a 3 bar safety valve;

- \* Operating pressure ranges from 1-1.5 bars;
- \* To empty the unit, attach a T-tube with a tap at the outlet (connected to the household sewage); the safety valve (3 bar) outlet should also be connected to the household sewage;

\*The heating fluid must consist of water with an anti-rust, non-toxic product added in the quantity recommended by the manufacturer. If the location where the compact or the fluid pipes are installed is likely to freeze, the installation engineer must add to the circulating fluid the amount of antifreeze product recommended by the manufacturer, to avoid it to freeze at the estimated minimum temperature.

### 5. Fuel

The compact pellet must be operated exclusively with pellets. No other fuel may be used.

Use only pellets certified by standard EN 14961-2 grade A1, with a 6mm diameter and a length between **10-30mm**.

The pellets may have a maximum humidity of 8% their weight. To guarantee a good combustion, the pellets must maintain these characteristics so they should be stored in a dry place.

The use of pellets other than those recommended may reduce the efficiency of the unit and cause deficient combustion.

You should always use certified pellets and must not forget to test a sample before buying large bulks.

The physical/chemical properties of the pellets (i.e. the calibre, friction, density and chemical composition) may vary within specific tolerances and according to each manufacturer. Please note that this may cause alterations to the combustion feed that would consequently cause the need to use different quantities of pellets.

The compact allows the quantity of pellets to be adjusted during start-up and at the different power ranges by  $\pm 25\%$  (refer to section 7.3.6 of the manual – power and transition settings).

## 

The unit CANNOT be used as an incinerator.

## 6. Using the compact pellet

#### Recommendations

Before starting up the unit, please check the following:

• Make sure that the unit is properly connected to the power mains using the 230VAC power cable.



Figure 9 – Electric power plug.

• Check to see whether the pellet reservoir is supplied with pellets. Inside the pellet reservoir is a safety grid to prevent users from reaching the worm screw.

• Before each time you light up the compact, make sure the burner is unobstructed.

The compact's combustion chamber and door are made of iron painted with high temperature-resistant paint; this will cause the releasing of fumes during the first burning sessions due to paint curing.

Make sure the hydraulic circuit has been correctly assembled and that it is connected to the water supply.

You should check that there is sufficient ventilation in the room where the unit is installed; otherwise it will not work properly. You should therefore check to see whether there are other heating air-consuming units in the room (e.g. gas units, diesel compacts, etc.); these should not be used simultaneously with the unit.

The compact pellets have a probe for measuring the room temperature. This probe is attached to the grid on the rear panel (Figure 10). For a good reading of the room temperature, avoid the contact between the end of the probe and the chassis of the compact. You may also attach the probe to the wall beside the unit.



Figure 10 - Room temperature prob

## 7. Control panel

#### 7.1. Display and control panel



Figure 11 – Display and control panel



a) Key to toggle between manual and automatic mode and exit menus (esc).



b) Key to access menus and confirmation key (ok).



c) Key to start/stop the unit and reset error messages.



d) Key to scroll the menus to the left, to increase and reduce the fan flow and increase or reduce the setpoint temperature.



e) Key to scroll menus to the right to increase and reduce the unit's power.

Figure 12 - Control keys

#### 7.2. Display information summary

#### 7.2.1. Menu

Menu showing compact in power "off", the room temperature in °C and Time.



**"Auto" mode:** in this mode, the unit will be turned on at maximum power until reaching a temperature of 1°C above the selected temperature (set point temperature). Upon reaching the set temperature, the unit toggles to the minimum operating power.

The set-point temperature can be set between 5 and 35°C by pressing the "-" key.

The "+" key allows the user to set the ventilation speed between 1-5 or to automatic mode.

#### 7.2.2. Water temperature

Press the Menu key twice to set the water temperature; the "Temp. Agua" (Water temp.) appears on the display. Press Set to display the "T. Aquecimento" (Heating Temperature) menu.



#### • Heating temperature

To set the desired **heating temperature** press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm. Press the "+" key to go to the "Temperatura de sanitários" (Bathroom Temperature) menu.



• Bathroom temperature (this mode is disabled)

#### 7.2.3. Date/Time

To set the **date and time**: press the Menu key twice; "Dia e Hora" (Date and Time) appears on the display. Press "set" to see the "Hora" (Time) menu.



#### • Time

To set the **time** press "set". The display starts to flash. Press the "+" or "-" key to select the desired time and then "ok" to confirm. Press the "+" key to go to the "Minutos" (Minutes) menu.



#### Minutes

To set the **minutes** press "set". The display starts to flash. Press the "+" or "-" key to select the desired minutes and then "ok" to confirm. Press the "+" key to go to the "Dia" (Day) menu.



#### • Day

To set the **day of the week** press "set". The display starts to flash. Press the "+" or "-" key to select the desired day and then "ok" to confirm. Press the "+" key to go to the "Dia Num." (Day Number) menu.



• Day of the month

To set the **day of the month** press "set". The display starts to flash. Press the "+" or "-" key to select the desired day and then "ok" to confirm. Press the "+" key to go to the "Mês" (Month) menu.



• Month

To set the **month** press "set". The display starts to flash. Press the "+" or "-" key to select the desired month and then "ok" to confirm. Press the "+" key to go to the "Ano" (Year) menu.



Year

To set the **year** press "set". The display starts to flash. Press the "+" or "-" key to select the desired year and then "ok" to confirm. Press "esc" to return to the "Dia e

Hora" (Date and Time) menu then "+" scroll to the next menu. The Crono (Timer) menu appears.



#### 7.2.4. Timer

The compact is equipped with a timer that allows the unit to be turned on or off at a specific time.

Activation

To **activate the timer** press "set". The "Habilitação" (Activation) menu appears. The timer may only be activated after the configurations have been set, as shown below.



To **activate the timer mode** press "set". The display starts to flash. Press the "+" or "-" key to select "On" or "Off" and then "ok" to confirm. Press the "+" key to go to the "Reiniciado" (Reset) menu.



This menu allows you to delete any programme settings. To do this, press "set". The "Confirmar?" (Confirm?) prompt appears. Press "set" again to confirm that you want to delete the settings or "esc" to exit.



The unit's **programmer** lets you choose from 6 different programmes for each day of the week.

To set up **programmes "P1" to "P6"**, select the desired programme using the "-" and "+" keys, and press "set" to select. The "P1 Habilitação" (Activation) menu appears.



Press "set" again and, when the display starts to flash, press "+" or "-" to select "On" or "Off". Press "ok" to confirm the selection. Press the "+" key to go to the "P1 A. Inicio" (P1 A. Start) menu.



To set the **starting time** for Programme 1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired time and then "ok" to confirm. Press the "+" key to go to the "P1 H. Stop" (P1 Time Stop) menu.



To set the **stopping time** for Programme 1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired time and then "ok" to confirm. Press the "+" key to go to the "P1 Temp. Ar" (P1 Air Temp) menu.



To set the **set point room temperature** for Programme P1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm. Press the "+" key to go to the "P1 Temp. Água" (P1 Water Temp) menu.



To set the **water set point temperature** (only for the **back compact model**) for Programme P1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired temperature and then "ok" to confirm.

Press the "+" key to go to the "P1 Fire" menu.



To set the **operating power** (1 to 5) for Programme P1, press "set". The display starts to flash. Press the "+" or "-" key to select the desired power and then "ok" to confirm. Press the "+" key to go to the "P1 Dia" (P1 Day) menu.



To select the **days of the week** that you want the P1 Programme to run, press "set" and then select the day of the week using the "-" and "+" keys. Press "set". The display starts to flash. Select "On" or "Off" using the "-" and "+" keys. Press "ok" to confirm the selection. Press the "esc" key to go to the "P1 Dia" (P1 Day) menu. Press "esc" twice and then "+" to go to the "Configurações" (Configuration) menu.



Repeat the above steps for programmes P2 to P6.

Note: After setting up the programmes, please remember to activate them on the "Habilitações" (Activation) menu.

#### 7.2.5. Sleep

The "Sleep" menu allows you to setup the time you want the compact to turn off.



Press "set". The display starts to flash. Select the desired time using the "-" and "+" keys. After choosing the time, press "ok" to confirm. Press "esc" to return to the menu and then "+" to go to the configuration menu.



#### 7.2.6. Configuration menu

To change the compact's **configuration** setup press "set". The "Língua" (Language) menu appears.



• Language

To select the **language**, press "set". Using the "+" or "-" keys, select the desired language (**Pt** – Portuguese; **NI** – Dutch; **Gr** – Greek; **It** – Italian; **En** – English; **Fr** – French; **Es** – Spanish; **De** – German). Press "ok" to confirm.

Press the "+" key to go to the "eco" menu.



Eco mode

If the compact is equipped with a thermostat that operates exclusively based on the temperature, the "eco mode" can be enabled to reduce the fuel consumption. In this mode, the compact operates at a set point temperature. The compact always operates at maximum operating power until it reaches a temperature of 33.8°F (1°C)

above the set point temperature. Upon reaching this temperature, the unit starts operating at minimum operating power for a preset time period. After this time has elapsed, the unit turns off. It remains off for another preset period of time. When the measured room temperature drops to a preset value, the compact turns on again at the maximum operating power.

This operation is only available in automatic mode.

To activate the eco mode, press "set". The display starts to flash. Select "On" or "Off" using the "-" and "+" keys. Press "set" to confirm the selection.

Press "esc" to return to the previous menu and "+" to go to the "Iluminação" (Light) menu.



#### • Light

To select 'ecrã iluminado' (**lit screen**), press "set". The display starts to flash. Press the "+" or "-" key to select the time period during at which you want the screen to be light up, or choose "On" to keep the light permanently on. Press "ok" to confirm the selection. Press the "+" key to go to the "Tons" (Tones) menu.



#### Tones

To activate the **key tone**, press "set". The display starts to flash. Press the "+" or "-" key to select "On" or "Off". Press "ok" to confirm. Press the "+" key to go to the "°C/°F" menu.



• Temperature scale (°C/°F)

To select **°C** / **°F**, press "set". The display starts to flash. Press the "+" or "-" key to select "**°**C", "**°**F" or "Auto", and then "ok" to confirm. Press the "+" key to go to the "Receita Pellet" (Pellet Qty) menu.



• Pellet quantity

Press "set" to show the "Actuações transitórias" (Temporary settings) menu.



- Temporary settings

This feature allows you to increase or decrease by 25% **the amount of pellets at start-up**. Press "set". The display starts to flash. Press "+" or "-" to increase or decrease (-5 to +5), as required. Each unit must be multiplied by 5 to obtain the

correct percentage. Press "ok" to confirm the selection. Press the "+" key to go to the "Actuações de Potência" (Power settings) menu.



• Power settings

This feature allows you to increase or decrease by 25% the amount of pellets at each power level. Press "set". The display starts to flash. Press "+" or "-" to increase or decrease the setting (-5 to +5), as required. Each unit must be multiplied by 5 to obtain the correct percentage. Press "ok" to confirm the selection. Press "esc" to return to the "Receita de pellets" (Pellet Qty) menu and "+" to go to the "Termostato" (Thermostat) menu.



• Thermostat

This feature allows you to enable or disable the **room temperature thermostat**. Press "set". The display starts to flash. Press the "+" or "-" key to select "On" or "Off" and then "ok" to confirm. Press the "+" key to go to the "Carga Pellet" (Pellet loading) menu.



• Pellet loading

This feature allows you to enable the **worm drive** to fill the channel when it is empty to ensure lighting of the unit. Press "set"; the "ok" option appears. Press "ok" to activate the drive (the "habilitada" (Activated) message appears) and "esc" to stop it. Press the "+" key to go to the "Limpeza" (Cleaning) menu.



• Cleaning

This feature allows you to **clean** the burning basket manually. Press "set"; the "ok" message appears. Press "ok" to start the cleaning; the "Habilitada" (Activated) message appears. When you wish to stop, press "ok". Press the "+" key to go to the "Técnico" (Technical) menu.



The technical menu is not available to the end user since it only includes factory settings that must never be changed.

#### 7.2.7. User Info

This menu contains some user information regarding the compact. Press "set"; the "Código de Ficha" (File Code) menu appears. Display software/firmware code Press the "+" key to go to the "Horas Funcionamento" (Operating Hours) menu.





This menu shows the total operation hours of the compact so far.



Fume exhaust operating speed (rotation per minute).



Airflow measured by the air probe.



Fume temperature.



Worm drive rotation time ("On").



Ventilation power level.



Hydraulic circuit pressure.



### 8. Starting-up the unit

To start operating the compact pellet, press the start/stop button for 3sec. The display should indicate "Acendimento" (Lighting) until completion of this phase.

The pellets are fed through the supply channel and into the burning basket (combustion chamber), where they will be ignited using a heat resistor. This process may take between 5-10 minutes, depending on whether the worm screw used to push through the pellets has been previously filled with fuel or is empty. Upon completion of the ignition phase, the word "On" should appear on the display. The heating power can be adjusted at any time by pressing the power selection button for approximately 1 sec. Users can choose between five preset power levels.

The selected power level is shown on the display. The initial power level at each start-up will be the power level set before the last stop.

#### 8.1. Stopping the unit

The stop sequence of the unit is started by pressing the start/stop key for 3sec. The display shows the message "**desactivação**" (Stopping) until the completion of this phase. The exhaust system remains active until the fume temperature reaches 104°F (40°C), to ensure the full burn of all the material.

#### 8.2. Turning off the unit

The unit should only be disconnected after full stop of the operation. Make sure the display shows the **'Off'** sign. Make sure that the display indicates **"Off"**. If necessary, disconnect the power cable from the mains.

#### 8.3. Instructions for removing the side covers

#### 8.3.1. Removing the side covers

Lift the cover and pull it up and forward, detaching it from the top and front slots. To reassemble, perform the steps above in reverse order.



Figure 13 – Removing the side covers

#### 8.3.2. Pellet reservoir lid

Open the pellet reservoir by sliding the latch (Figure 14 a) and lifting up the lid (Figure 14 b).



Figure 14 – Opening the lid

#### 8.4. Filling the pellet reservoir

- 1 Open the pellet reservoir lid at the top of the unit, as shown in Figure 14 b.
- 2 Fill the reservoir with pellets, as shown in Figure 15.



Figure 15 - Filling the pellet reservoir

3 - Turn on the unit and close the lid, pressing it down until the latch snaps into place as shown in Figure 14-a.

#### 8.5. Installing and operating with a remote control (programmable thermostat) – not supplied with compact units

The compact pellet units are provided from factory with a display and control panel. Alternatively, you can operate the compact using a generic remote control unit (programmable thermostat). **Note:** Usually, the remote control is supplied with a user's manual. To use the remote control, you must install an interface (Figure 16–b).



Figure 16 – Remote control (programmable thermostat) and connection interface – not included. If you want to use a **wireless** remote control, you need to connect the two wires as shown in the following figure:

a)



Figure 17– Connecting a wireless remote control

If you want to use a **wired** remote control, you need to connect the black and the grey wires to the receiver as shown in the following figure.



Figure 18 - Connecting a wired remote control

## 8.5.1. Instructions to perform the remote control connections

1 - Turn off the unit's power switch, remove the right side panel of the compact pellet.

2 – Disconnect the terminator plugs from block phase (F) and neutral (N).



- a)
- 3 Rivet the terminals of the 220V wire that powers the transmitter.



4 – Connect the wires to the ON/OFF connector contact (Figure 19 d). Direct the wires through the cable holder to the interior of the compact (Figure 19 e).



5 – Connect the external remote control plug (On/Off contact) in the "remote" position (Figure 19 g).





### 9. Installing the safety option – UPS Kit



Figure 20 - a) example of UPS (not included in the kit); b) UPS kit components

To connect the UPS connection kit, proceed as shown in the figures below.

First, remove the side cover to access the electronic plate (Figure 21 a). Then, attach the UPS electronic module at the side of the compact's electronic plate, connecting the wires to the plate (Figure 21 b and c).

Then remove the plate fixed with micro joints from the back of the unit (Figure 21 d) and attach the plug to connect the UPS (Figure 21 e). Finally, make the required electrical connections (Figure 21 g).

A Never connect the UPS electronic module with the power of the unit turned on.















d)





g)

Figure 21 - Installing the UPS kit

#### Maintenance A 10.

The Solzaima compact pellet requires careful maintenance. The major concern is to clean the ashes from the pellet burning area at regular intervals. This procedure can be easily done using a common household vacuum cleaner. The cleaning operation should performed after each burn of approximately 66lbs (60kg) of *pellets*.

**Note:** However, before cleaning, the compact must be turned off and the unit should be allowed to cool down to prevent personal damage.

#### Cleaning the Compact

The compact's maintenance operation includes cleaning the airflow pipes. To do this, open the lid on the top of the compact (Figure 22 a) and then rotate (Figure 22 b) and lift the tubes by the handle (Figure 22 c); repeat this procedure several times to shake off the dirt accumulated inside the tubes.





a)

b)



c) Figure 22 – Cleaning the turbulators

Finally clean the interior of the compact using a steel brush to remove the accumulated dirt (Figure 23).



Figure 23 – Cleaning the interior of the back compact

Remove the burning basket (Figure 25 a) and ash tray (Figure 25 b) and vacuum both pieces. You should also clean the compact's interior. To do so, open the lid, as shown in Figure 26. When the cleaning is done, reassemble all parts performing the above steps in reverse order and close the unit's door.



a) b) Figure 24 a) Burning basket; b) Ash tray



Figure 25 - Cleaning the burning basket



a) b) Figure 26 – Cleaning the interior of the compact

#### Additional cleaning

For every 1300-1700lbs (600-800kg) of pellets consumed, additional cleaning should be performed.

For the back compact, the procedure includes cleaning the air flow pipes and turbulators. To do this, open the lid on the top of the unit (Figure 27 a), remove the galvanized plate and the six wing nuts securing each turbulator set (Figure 27 b and c). Then pull the turbulators up (Figure 27 d/e). Use a vacuum cleaner to clean this area (Figure 27 f). Clean the interior of the tubes (Figure 27 g) using a steel brush (Figure 27 g). The removed turbulators should also be cleaned using a steel brush (Figure 27 h).

To reassemble the turbulators, perform the steps above in reverse order of the figures below.



a)



b)













Figure 27 – Cleaning the air flow pipes and turbulators

If you notice a problem with the fume exhaust, you should clean the exhauster as shown in Figures 28 and 29 below. By default, we recommend that you execute this procedure at least once a year.



Figure 28 – a) Remove the screws; b) Remove the exhauster



Figure 29 - Vacuum the air flow pipes

## 11. Alarm / fault / recommendation list $\triangle$

Alarm	Code		Cause and troubleshooting
Ignition failure	A01	Maximum time 2400 sec	<ul> <li>the worm drive channel is empty - restart the unit</li> <li>resistance burnt – replace the resistance</li> <li>the burning basket has been incorrectly installed</li> </ul>
No flame or no pellets	A02	Temperature under: 104°F (40°C) (air model) 109.4°F (43°C) (water model)	- Pellet reservoir is empty
Excess heat in the pellet drum	A03	194ºF (90°C)	- the fan is not working – call for assistance - faulty thermostat - call for assistance - machine with faulty ventilation
Excess fume temperature	A04	Over 446°F (230°C) (air model);	<ul> <li>the fan is not working or is working at a low power level - increase the level to the maximum (if the problem persists, call for</li> </ul>
		Over 446°F (260°C) (water model)	assistance) - Insufficient extraction - Excess pellets
Pressure switch alarm	A05	The door is open, lack of draught or extractor fault for 60 sec	<ul> <li>close the door and clear the error message on the faulty pressure regulator</li> <li>Obstruction of the exhaust pipe or faulty extractor</li> </ul>
Air mass probe	A06	40 Ipm delta for 3600 sec	<ul> <li>pipes with insufficient extraction or obstructed pipes</li> </ul>
The door is open	A07	Door open for 60 seconds	- close the door - clear the error message
Fume extractor is faulty	A08	Connection failure	- check connection
Fume probe failure	A09	Connection failure	- check connection
Pellet resistance error	A10	Connection failure	- check connection
Worm drive error	A11	Connection failure	- check connection
Pellet level alarm	A15		- check connection
Water pressure outside operating range	A16		- check connection
Excess water temperature	A18		- check connection

Table 2 – Alarm list

Important notice: all alarms cause the unit to shut down. The alarm must be reset and the unit restarted. To reset the unit press the "On/Off" button for 10 seconds until a beep sounds.

#### - Malfunctioning

Malfunctioning
Maintenance
Air probe failure
Low pellet level
The door is open
Air temperature probe failure
Water temperature probe failure
Water pressure sensor fault
Water pressure close to out of operating range
Table 3 – Malfunction list

 $\Lambda$  Important notice: failures do not cause the machine to shut down.

#### 

In case of emergency, shut the unit down following the normal procedure to switch the unit off.

## 

#### THE UNIT CAN GET VERY HOT DURING OPERATION SO CARE MUST BE TAKEN ESPECIALLY REGARDING THE DOOR GLASS AND HANDLE.

# 12. Installation diagrams (for back compacts only - Compacta 18kW and Compacta 24 kW)

#### 12.1. Central heating installation diagram



Figure 30 – Central heating installation diagram.

## 12.2. Wood and pellet central heating installation diagram



Figure 31 - Wood and pellet central heating installation diagram

## 12.3. Installation diagram of compact pellet for central heating with wall-mounting



Figure 32 - Installation diagram of compact pellet for central heating with wall-mounting

## 12.4. Installation diagram for central heating and household water heating using a cylinder thermostat



Figure 33 - Installation diagram for central heating and household water heating using a cylinder thermostat

#### 12.5. Symbols



Figure 34 – Symbols



## 13. Electrical diagram of the compact pellet

Figure 35 - Electrical diagram

# 14. Performance graphs for the UPSO 15-55 CIAO circulation pump



Figure 36 – Performance graphs for the circulation pump

## 15. Life cycle of a compact pellet

About 90% of the materials used in the manufacture of these units are recyclable, thus helping to reduce environmental impact and contributing to the sustainable development of the Planet. End-of-life units should be returned to authorised waste processing systems. We advise you to contact your local authorities for instructions.

### 16. Sustainability

Solzaima designs and manufactures biomass solutions and biomass-fuelled equipment as a primary energy source. This is our contribution for the sustainability of our planet – an economically viable and environmentally-friendly alternative, following environmental best management practices to ensure an efficient carbon cycle management.

Solzaima makes all efforts to learn and to know the national forest park while efficiently responding to energy demands, taking permanent care to maintain its biodiversity and natural wealth that are essential for the quality of life on our Planet.

SOLZAIMA is a member of the Portuguese **Sociedade Ponto Verde**, which manages packaging waste from products that the company places on the market, so you can take the packaging waste from your unit, such as plastic and cardboard, to your nearest recycling point.

SOLZAIMA is a member of **Amb3E**, the entity responsible for collecting waste electrical and electronic equipment (WEEE). Thus, end-of-life units with forced ventilation systems should be transported to an appropriate WEEE-processing location. When you disassemble your equipment, you can take its electrical components to your nearest WEEE collection point.

## 17. Glossary

Ampere (A): SI unit of measurement of electric current

bar: unit of pressure equal to exactly 100,000 Pa. This pressure is very close to standard atmospheric pressure.

**cal** (Calorie): equal to the amount of heat required to increase the temperature of one gram of water by one degree centigrade.

Circuit breaker: Electromechanical device that protects a given electrical appliance.

cm (centimetres): unit of measurement.

**CO** (carbon monoxide): Lightly flammable, colourless, odourless and very dangerous gas, due to its toxicity.

CO<sub>2</sub> (carbon dioxide): Gas needed by plants for photosynthesis on the one hand, and emitted into the atmosphere on the other, contributing to the greenhouse effect.

CO emissions: emission of carbon monoxide gas into the atmosphere.

CO Emissions (13% O<sub>2</sub>): carbon monoxide content corrected to 13% of O<sub>2</sub>.

**Combustion:** a process that releases energy. Combustion is basically a chemical reaction that requires three items in order to take place: fuel, oxidant and ignition temperature.

**Creosote:** chemical compound created by combustion. This compound is sometimes deposited on the glass and flue of an insert fire.

**Differential switch:** protects people and property against grounding failures, preventing electric shocks and fires.

**Energy efficiency:** capacity to generate large quantities of heat with the least amount of energy possible, causing the least environmental impact and reducing the energy budget.

Fuel: anything that can undergo combustion, in this case wood.

**Glass ceramics:** highly resistant ceramic material produced through controlled crystallisation of vitreous materials. Used widely in industrial applications.

Heat-resistant: resistant to high temperatures and thermal shock.

**kcal** (Kilocalorie): multiple unit of measurement of calories. Equivalent to 1000 calories.

**kW** (Kilowatt): unit of measurement equal to 1,000 watts.

mA (milliampere): unit of measurement of electric current.

mm (millimetres): unit of measurement.

**Net heating value:** also known as specific combustion heat. It represents the amount of heat released when a certain amount of fuel is completely burned. Calorific value is expressed in calories (or kilocalories) per unit of weight of fuel.

**Oxidiser:** chemical substance that feeds combustion (essentially oxygen) and is essential for it to take place.

**Pa (Pascal):** standard IS unit of pressure and tension. This unit is named after Blaise Pascal, eminent French mathematician, physicist and philosopher.

**Performance:** expressed as a percentage of "useful energy" that can be extracted from a given system, taking into account the "total energy" of the fuel used.

Ignition temperature: temperature above which the fuel can enter into combustion.

Plumb: vertically above the installation.

**Power output:** a manufacturer's recommendation from tests on the equipment with firewood loads within a reasonable operating range. This power output range will present different firewood consumptions per hour.

**Rated net heating value:** heating capacity, i.e. the heat energy the unit transfers from energy present in the firewood – measured for a standard load of firewood over a given period of time.

Rated power: Electric power consumed by an energy source. Measured in watts. W (Watt): IS unit of power.

## 18. Warranty

All SOLZAIMA compact pellets offer a 2-year (two year) warranty from the date the invoice is issued. In order for your warranty to be valid, you must keep the invoice or receipt of purchase during the warranty period.

All electrical resistances have a 6-month warranty.

The warranty applies only to defects in materials or manufacture.

#### **Exclusions:**

This warranty does not cover broken glass;

The type of fuel used and how the unit is handled are beyond SOLZAIMA's control, so parts in direct contact with the flame are not covered by this warranty;

This warranty does not cover the sealing ring;

The installer bears full responsibility for all problems and/or defects resulting from the installation process;

Costs incurred from displacement, transport, labour, packaging, disassembly and down periods of the unit resulting from procedures covered by this warranty are the responsibility of the purchaser;

Any malfunctioning caused by mechanical or electrical parts not supplied by SOLZAIMA and which are prohibited under the instructions governing heating appliances are not covered by this warranty;

Installing the compact unit near medium/high voltage lines with fluctuations above 230V±5% may damage the unit's electrical components. Therefore it is advisable for the unit to be connected to a current stabiliser.

Notice:

The use of a current stabiliser or UPS is generally recommended, to ensure all electrical components operate properly.

SOLZAIMA disclaims any responsibility for damage caused from using fuel other than pellets certified by standard EN 14961-2 grade A1.

## 19. Annexes

Operation flow charts





**Note** (only for the water model): The circulation pump operates on pulse power from the moment the water temperature reaches  $50^{\circ}$ C and continuously from the set-point temperature.



• Flow chart 2 - Disconnecting the machine



Note (only for the water model): The circulation pump is turned off when the water temperature reaches below  $40^{\circ}$ C.