

BTOUCH AIR PELLET KIT

BRAHMA

DIGITAL CONTROL SYSTEM FOR DOMESTIC WOOD PELLET STOVES WITH AIR TO AIR HEAT EXCHANGER

PELLET BTOUCH

AMBIENT UNIT WITH USER AND INSTALLER
INTERFACE AND TIMER THERMOSTAT FUNCTION



PELLET MAIN CONTROL UNIT – EBP

POWER UNIT FOR ON-BOARD STOVE LOADS
CONTROL



SF1 AIR FLOW SENSOR



IR REMOTE CONTROL UNIT



DESCRIPTION

The **BTOUCH AIR PELLET KIT** made by Brahma S.p.A. enables to automatically control a domestic wood pellet stove with single air to air heat exchanger, managing room temperature adjustment and fuel consumption.

The kit consists of two units: the first one, called PELLET BTOUCH, is dedicated to the user interface and room temperature adjustment with timer thermostat functions, while the second one, called EBP (pellet main control unit), controls the loads of the stove. The electrical connection between the two units occurs by means of a four-wire cable.

The (optional) SF1 air flow sensor, installed inside the combustion air intake duct, enables the air flow measure in order to optimize the pellet combustion process. The (optional) IR remote control unit allows remote interaction with the user interface.

GENERAL FEATURES

PELLET BTOUCH user interface

- Monochrome dot matrix graphic LCD, 128x64 pixels, with backlighting;
- Seven touch function keys with LED backlight;
- Snap-in fixing without screws or on a bracket by means of screws (see images on page 5);
- Electrical connection to the power unit by means of a four-wire cable;
- Data backup through a super-capacitor if mains supply voltage is not present;
- IR receiver for Brahma remote control unit;
- On-board buzzer for acoustic signalling;
- Plastic box made of smoke grey PC UL94 V2 material;
- Optional on-board module for Wi-Fi connection.

EBP power unit

- Single-phase power supply with earth conductor (230V~50Hz);
- To be mounted inside the stove in a position not to be reached by the user;
- Electrical connection with PELLET BTOUCH user interface by means of a four-wire cable;
- Loads control and inputs acquisition in the final appliance in which the electronic board is installed:
 - ignition candle;
 - flue gas extractor fan with or without sensor for rmp detection;
 - air to air heat exchanger;
 - screw feeder (cochlea) motor;
 - input for room temperature probe;
 - input for heat demand consent;
 - two additional inputs available;
- Prearranged for safety thermostat and air pressure switch connections;

- Flame detection by means of a thermocouple type J. On demand by means of Brahma phototransistor series FT11 or FT13;
- 4kV and 5mm insulation type PELV (Protective Extra Low Voltage) on the PCB surface between components connected to the mains supply and low voltage parts;
- System equipped with mains supply filter and protection varistor on the electronic board input;
- Plastic box made of PA6 UL94 V0 material.

SF1 air flow sensor

- Used in order to optimize fuel consumption and reduce flue gas;
- No calibration needed for the end user;
- Plastic box made of PA6 GF30% material;
- More information on www.brahma.it.

TECHNICAL DATA

PELLET BTOUCH user interface

Power supply voltage	5 V _{DC}
Protection rating	IP40
Operating temperature	from 0 to +60 °C
Weight	100 g
Humidity (no condensate)	95% max @ 40°C
Length of connection cable to main board	1,5 m max

EBP power unit

Power supply voltage	230V~ / -15% +10%
Power supply frequency	50 Hz ± 5%
Consumption without loads	< 10VA max @ 230V~
Protection rating	IP00
Operating temperature	from 0 to +60 °C
Humidity (no condensate)	95% max @ 40°C
Weight	173 g
Internal fuse (*)	3,15A Fast 250V~
Max. length of cables with PELV potential	< 1 m

Max. output rating	
Ignition candle	1,2A @ 253V~ cosφ=1
Screw feeder motor (**)	0,4A @ 253V~ cosφ≥0,4
Heat exchanger 1 (**)	0,4A @ 253V~ cosφ≥0,4
Flue gas extractor fan (**)	0,4A @ 253V~ cosφ≥0,4

(*) Since the internal fuse is not accessible, it is advisable to provide an external fast-blow fuse with a lower current than the internal fuse.

(**) The total sum of the current absorbed by all active loads at the same time **should not exceed** the value of 1.2A @ 253V~ 60°C.

IR remote control unit

Supply voltage	Lithium battery CR-2032
Protection rating	IP30
Number of keys	5
Consumption in stand-by	0 W - insignificant
Weight	44 g

ELECTRICAL CONNECTIONS

The wiring diagram is illustrated on page 5.

Connections at mains supply voltage (STOCKO series MKS2820)

Reference	Pole	Function
J1	1	Functional earth
	2	Electronic board mains supply (neutral)
	3	Electronic board mains supply (line)
J4	4	Output for ignition candle (neutral)
	5	Output for ignition candle (n.o. line)
J7	6	230V~ line output for the power supply of safety sensors and loads
	7	Output for screw feeder (neutral)
	8	Output for screw feeder (line)
	9	Output for heat exchanger (neutral)
	10	Output for flue gas extractor (neutral)
	11	Air pressure switch input
	12	Air pressure switch input
	13	Safety thermostat input

The safety sensors "air pressure switch" and "safety thermostat" are electrically connected in series to the power supply line of the screw feeder, therefore the activation of a sensor causes the immediate shutdown of the screw feeder.

Connections at PELV potential (4,8x0,8 fast-on)

Reference	Pole	Function
J13	/	Functional earth

Connections at PELV potential (Molex 0010085021)

Reference	Pole	Function
J2	14	Outputs for the connection of the user interface to ECO PELLET KIT and TOUCH ECO PELLET KIT (for more information on these products see www.brahma.it).
	15	

Connections at PELV potential (Lumberg series 2,5 MSF)

Reference	Pole	Function
J5	16	Input for flue gas extractor rpm sensor
	17	5V _{DC} input for flue gas extractor rpm sensor
	18	GND for flue gas extractor rpm sensor
	19	Not used
J6	20	For SF1 air flow sensor connection
	21	
J8	22	
	23	
J9	24	Input for thermocouple cold junction -
	25	Input for thermocouple cold junction +
	26	Input for room temperature probe
	27	Input for room temperature probe
	28	Optional input 1
	29	Optional input 1
	30	Input for heat demand consent
	31	Input for heat demand consent
	32	Optional input 2
	33	Optional input 2
J3	34	Serial port for PELLET BTOUCH user interface connection
	35	
	36	
	37	
	37	

ACCESSORIES

The **BTOUCH AIR PELLET KIT** can be supplied with the following accessories:

Brahma ST07 room temperature probe



Brahma SF1 air flow sensor



Brahma IR remote control unit



Brahma FT11 and FT13 phototransistors



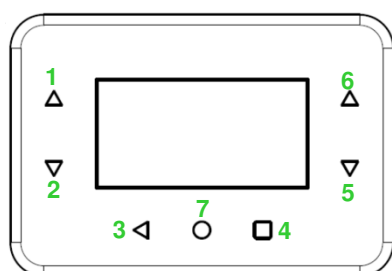
For more information on the above products please refer to the related data sheets on our website www.brahma.it.

Additionally, Brahma S.p.A. can supply female connectors and terminals for the electrical wiring, a thermocouple type J, and a cable for the connection of the EBP main board to the PELLET BTOUCH user interface.

DIRECTIONS FOR INSTALLATION

The manufacturer's liability and warranty will be invalidated if the device is tampered with by the user. Respect the applicable national and European standards (e.g. EN60335-1/EN60335-2-102) regarding electrical safety. Before starting the unit check the cables carefully; a wrong wiring can damage the devices and compromise the safety of the installation. Connect and disconnect the control system only after switching off the power supply. Avoid exposing the system to dripping water or condensate. In order to extend the life of the device, it is advisable to keep a fairly low room temperature. If it is necessary to replace the control system, use a device with the same features.

PELLET BTOUCH INTERFACE – DIRECTIONS FOR USE



The PELLET BTOUCH user interface, equipped with simple and user-friendly commands, enables the user and the installer to easily carry out several operations

through few function keys thanks to the support of the dot matrix graphic LCD. Each key has a display area that shows the type of command associated to the key in that moment, depending on the operation status and the currently active menu. For example, the following figure shows that when the system is in OFF status only key no. 3 is active, and if it is pressed for a long time the system switches on.



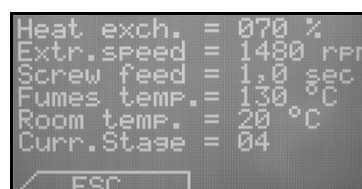
When the control system is in ON status, the display typical visualization is as shown in the figure below. Any display variations can be implemented on customer's request.



In this case all keys are active. The keys on the left side (1 and 2) allow to adjust the desired power level, and the set value is shown by means of a number and a level bar. The keys on the right side (5 and 6) allow to set the desired room temperature value. The set room temperature value appears in flashing mode when keys 5 and 6 are pressed, whereas in normal conditions the display shows the measured room temperature. On the top left side you can find an icon showing the communication status between the units; in addition, if the Wi-Fi module is installed, the related status icons are also displayed. Furthermore, on the top side of the display you can see information regarding the current hour and day, if they are set in the appropriate menu. In central position you can see information on the system operation status (TEMP. OK) and the operation mode set by user (AUTO or MANUAL). Key (3) on the bottom left side of the display keeps its own ON-OFF function, while key (6) on the bottom right side acts like a "shift" and changes the functions associated to the other keys. By keeping this key pressed, the symbols on both sides of the display change, and pressing simultaneously one of the other keys enables to select the different available functions.

System information

Access to this menu is possible by pressing keys [SHIFT] (4) and [Info] (1). This screen page shows information regarding the control of the loads and some input values. Screen page modifications are possible on customer's request.



Functional mode selection

Pressing keys [SHIFT] (4) and [A/M] (6) enables to select the desired functional mode. In *AUTO* mode the ambient controller operates like a weekly timer thermostat with one settable temperature value: the stove switches on in the periods planned by the weekly program (timer) only, provided that the time has been adjusted and the room temperature is lower than the set value. In *MANUAL* mode the ambient controller has a thermostatic function only, and the stove switches on in order to keep the room temperature as close as possible to the set value.

Menu selection

Pressing keys [SHIFT] (4) and [Menu] (5) enables to access the screen page of the different menus available in the system. To access the desired menu, select it by means of keys "up" (6) and "down" (5) and confirm by OK (4).

Options

This menu, freely accessible by the end user, contains various general options and parameters related to the user interface and the stove temperature adjustment operation mode. For more details please refer to the relevant "technical specifications" of the **BTOUCH AIR PELLET KIT** you are interested in.

Set Time

This menu, freely accessible by the end user, enables to adjust the current time and day of the week.

Set Timer

This menu, freely accessible by the end user, allows him to program the weekly timer, used in *AUTO* mode, according to his own needs in a very simple and user-friendly way, thanks to the graphic representation of the whole week.



Set System

From this menu, accessible by entering the correct 4-digit password, you have total access to all system configuration parameters.



Using the **MANUAL SERVICE** menu item, which is accessible when the system is in stand-by (TEMP-OK) status, you can activate the various stove devices individually in order to verify their correct operation. Through the **TYPE SYSTEM** menu item you can select the required set of parameters from 12 pre-loaded databases. In this way you can use the **BTOUCH AIR PELLET KIT** on several stove models, choosing the set of parameters that best suits your model and installation needs. For information on the meaning of each parameter see the relevant "technical specifications" of the **BTOUCH AIR PELLET KIT** you are interested in.

Set Wi-Fi

This menu, freely accessible by the end user, allows him to enable or disable the use of the Wi-Fi connection and to configure the connection itself, in order to control the stove remotely by means of a specific App for Android and iOS systems.

Diagnostics

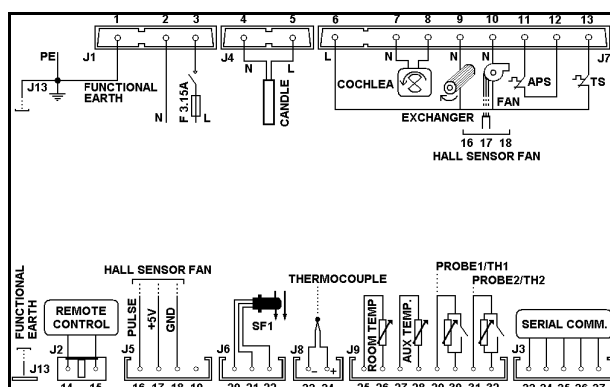
In the event of a failure detection, the system goes into cooling status and displays the corresponding error code. Keeping the central key (7) pressed after removing the detected failure causes the error code to disappear from the display. For clarifications on the meaning of each error code see the relevant "technical specifications" of the **BTOUCH AIR PELLET KIT** you are interested in.



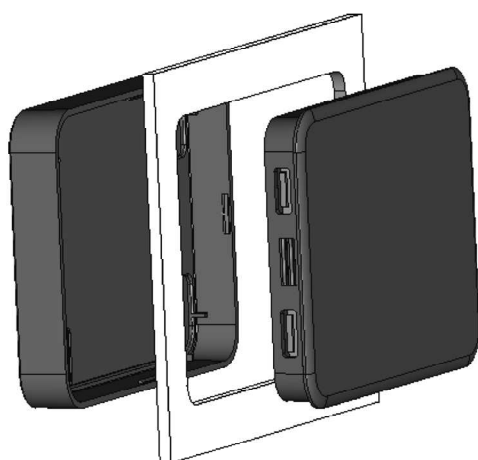
NOTES ABOUT PRODUCT DISPOSAL

The device contains electronic components and cannot therefore be disposed of as normal household waste. For the disposal procedure please refer to the local rules in force for special waste.

WIRING DIAGRAM

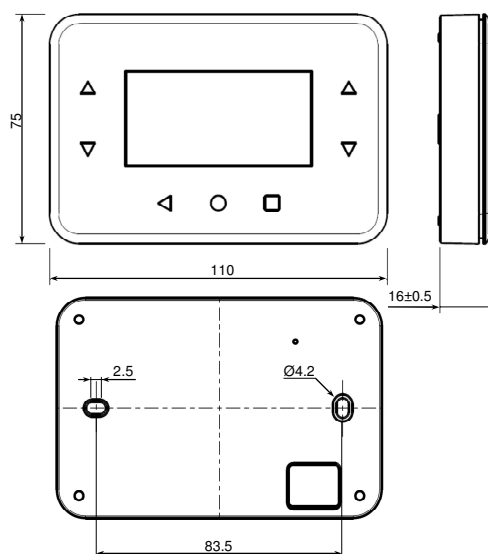


PELLET BTOUCH INTERFACE SNAP-IN FIXING



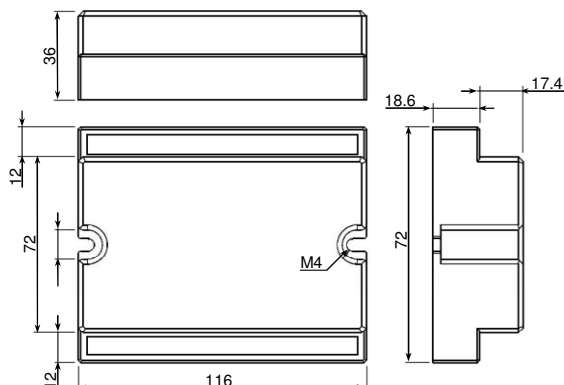
Available fixing bracket
thickness: 1 mm or 3 mm

PELLET BTOUCH MECHANICAL DIMENSIONS

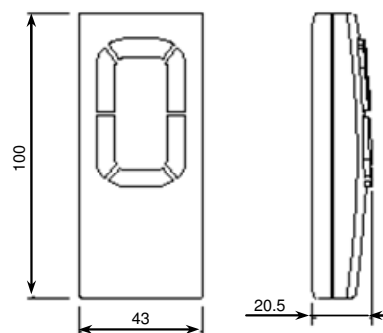


Fixing holes centre distance compatible with 503
electrical box

PELLET MAIN BOARD MECHANICAL DIMENSIONS



REMOTE CONTROL MECHANICAL DIMENSIONS



Unit of measure: mm – Tolerance: ± 1 mm

ATTENTION -> Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer tampering with the product

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