

FUNCTIONAL SPECIFICATIONS ULTRASOUND KIT RAL730D + RAL200

SPECIFICATIONS ultrasound interface board RAL200

- 230vac - 50 / 60hz power supply
- Electronic microprocessor system
- 3 digit 7 segments blue display
- Storage of functional parameters
- Controls via 4-key keyboard
- Removable screw terminals
- Board supplied in plastic box
- Wiring for connection with power board included in the kit
- Nr. 1 Input to manage PTC probe
- Nr. 2 relays used for fan supply and heating resistance
- Buzzer for reports

External polycarbonate mask not included; available on request and on customer specifications.

SPECIFICATIONS ultrasound power generator board RAL730D

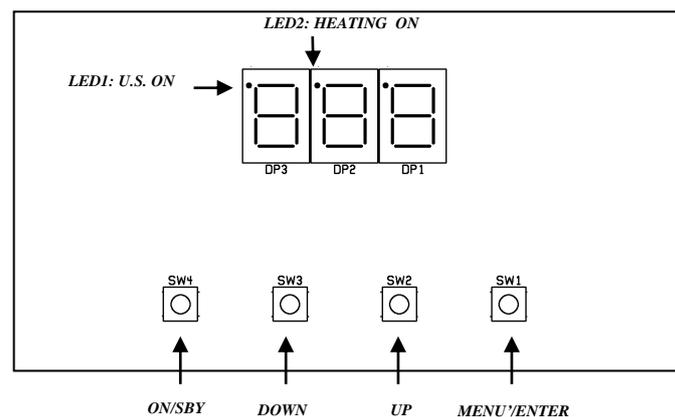
- Mains power supply 230Vac - 50 / 60Hz with protection fuse 6.3x32mm 250V 16AF (fast).
- US floating output.

FUNCTIONAL SPECIFICATIONS

- Ultrasonic washing cycles
- Possibility to set the working frequency
- Possibility to set the working temperature
- Possibility to set the maximum working temperature
- Possibility of setting timer-based washing cycles
- Possibility to set a pre-heating preparatory to the washing cycle
- End of cycle acoustic signals
- Alarm signals

PLEASE NOTE: Read the following instruction manual carefully. The working parameters currently set by default are a standard configuration, check and possibly configure the parameters appropriately for your application.

SUMMARY OF USER INTERFACE COMMANDS



When the ultrasound system is powered, the board enters stand-by mode, indicated by the scrolling word "Gen-US".

Key SW4 ON/SBY

In stand-by mode, a single press allows you to start the washing cycle according to the parameters set via the menu. With the cycle active, a single press allows you to pause the cycle or restart it. Pressed for 3 seconds ends the washing cycle, and the machine returns to stand-by. In menu mode, it allows you to return to the previous menu without storing the parameters.

Key SW3 DOWN

In menu mode it allows you to select the label of the parameter to be modified and to decrease its value. With the cycle active, paused or in stand-by, a pressure allows you to view the temperature detected by the probe (if the temperature is set to On).

Key SW2 UP

In menu mode, it allows you to select the label of the parameter to be modified and increase its value. With the cycle active, in pause or stand-by, a single pressure activates or deactivates the heating resistance (only if the pre-heating function is set to Off and the temperature is On).

Key SW1 MENU

In stand-by mode, a single press allows access to the menu. With the cycle active or paused, a single press allows access to the power modification menu. In menu mode, it allows you to select a specific item, and once the appropriate setting has been identified, it allows you to exit the aforementioned item, storing the parameter.

LED1

When it is steady it indicates that the ultrasound cycle is in action. Flashing indicates that the cycle has been paused. Off indicates that there are no active wash cycles.

LED2

When it is steady, it indicates that the temperature resistance is working to carry out pre-heating, or to bring the system to the set temperature if it has lowered. When it is flashing it indicates that the desired temperature has been reached, the resistance is off but ready to reactivate as soon as the temperature drops below the set threshold. When it is off, with temperature and pre-heating in Off mode, it indicates that the resistance is deactivated, therefore the washing cycles will be with water at room temperature. In stand-by mode, LED2 remains on even if the pre-heating mode is On.

MENU

The menu consists of the following four items:

1. Pot → Power setting
2. °C → Temperature setting
3. P °C → Pre-heating setting
4. t' → Timer setting

POWER SETTING (Pot)

Once the corresponding item in the main menu has been selected using Key SW1, the five available power levels can be scrolled using the SW2 and SW3 keys.

Press Key SW1 again to return to the main menu, storing the displayed power level.

Press Key SW4 to return to the main menu without storing the displayed power level.

TEMPERATURE SETTING (°C)

Once the corresponding item in the main menu has been selected using Key SW1, with the SW2 and SW3 keys it will be possible to scroll the range of available temperatures (from Off to the maximum temperature set by the manufacturer).

Press Key SW1 again to return to the main menu, storing the displayed temperature.

Press Key SW4 to return to the main menu without storing the displayed temperature.

If the temperature is set to Off, the washing cycle will be performed cold.

To activate the resistance, you can press SW2 (in stand-by, active cycle or pause).

PRE-HEATING SETTING (P °C)

Once the corresponding item in the main menu has been selected using Key SW1, with the keys SW2 and SW3 it will be possible to alternately display the wordings On and Off, indicating respectively the will or not to start the washing cycle only when a certain temperature is reached, settable through the appropriate menu. In On mode, the resistance will activate (LED2 fixed), it will switch off when the desired temperature is reached and will reactivate if the temperature drops.

Press Key SW1 again to return to the main menu, memorizing the displayed option.

Press Key SW4 to return to the main menu without storing the displayed option.

This function is not applicable if the temperature is set to Off (see previous paragraph).

TIMER SETTING (t')

Once the corresponding item in the main menu has been selected using the SW1 key, with the SW2 and SW3 keys it will be possible to scroll the available time range, from Off to 90 minutes, in 1 minute steps.

Press Key SW1 again to return to the main menu, storing the minutes displayed.
Press Key SW4 to return to the main menu without storing the minutes displayed.

START OF THE WASHING CYCLE

Once the parameters have been set, you can exit the menu mode by repeatedly pressing the Key SW4 until you return to stand-by mode. At this point it is possible to start the washing cycle by pressing Key SW4. The execution of the ultrasound cycle is indicated by the steady LED1. On subsequent system operations, acting directly on Key SW4 without intervening in the settings, a cycle will be started according to the parameters of the last use. If no timer has been set, at the start of the cycle the minute indicator will appear in increasing mode, up to a maximum of 240 minutes (4h).

TIMED WASHING CYCLE

If a timer has been set, the minutes selected in countdown mode will appear when the cycle starts. At the end of the time, a short acoustic sound (5 beeps) will be emitted, which will be repeated every 5 minutes, accompanied by the word End (steady) to signal the end of the cycle. By pressing any key it is possible to interrupt the acoustic signal and return to stand-by mode.

WASHING CYCLE WITH PREHEATING

If the pre-heating mode is set to On, at the start of the washing cycle the temperature detected by the probe will appear (if this is lower than the set temperature), with LED2 on, to symbolize that the resistance dedicated to the temperature is in action. The cycle will automatically start when the temperature set in the appropriate menu is reached: this step will be indicated by the LED2 turning off and LED1 turning on, as well as by starting the minute count in increasing or countdown mode.

WASHING CYCLE PAUSE

With the cycle active, it is possible to pause the system by briefly pressing the Key SW4. PSE will be displayed, while LED1 is flashing. If the resistance is active or if the pre-heating function is set to On, the water temperature will remain constant throughout the pause period. Press Key SW4 again to restart the cycle.

CHANGING THE POWER DURING OPERATION

With the cycle active or in pause mode, it is possible to change the work power by using the SW1 and then SW2 and SW3 keys.

Press Key SW1 to return to the cycle (active or paused), storing the displayed power.

Press Key SW4 to return to the cycle (active or paused) without storing the displayed power.

END OF THE WASHING CYCLE

The stop of a cycle occurs spontaneously at the end of the set timer (or after 4h of washing), or it is possible to end it in advance by pressing the Key SW4 for 3 seconds. In case of spontaneous arrest, the steady word End will be displayed accompanied by 5 beeps every 5 minutes. By pressing any key the machine will return to stand-by mode. In case of manual stop, the machine will go directly to stand-by mode.

In any case, the fans will continue to run for about 5 minutes before stopping permanently.

FREQUENCY AND MAXIMUM TEMPERATURE SETTING (only for the manufacturer)

In stand-by mode, holding the SW2 and SW3 keys simultaneously for 3 seconds, you will access the dedicated menu for setting the working frequency and the maximum temperature that can be reached by the end customer, depending on the type of resistance installed on the system.

The two menu items are indicated as follows:

1- frE: frequency setting

2- h°C: setting the maximum temperature

Entering the frequency section via SW1, it is possible to use the SW2 and SW3 keys to change the working frequency within a predefined range, optimized for the transducers in use, in 10hz steps. The frequency will be displayed (five digits) by continuously alternating the letter F followed by the first two digits and then the other 3 digits left. For example, if the frequency to be displayed is 12345Hz, you will first see F12 and then 345. Press SW1 to return to the previous menu saving the displayed parameter. Press SW4 to return to the previous menu without storing the displayed parameter.

By scrolling through the hidden menu and accessing the temperature section via Key SW1, it is possible to scroll the range of available temperatures (from 20 ° to 99 °) with SW2 and SW3. Once the desired maximum temperature value that can be set by the end customer has been identified, press SW1 to return to the previous menu, saving the displayed parameter. Press SW4 to return to the previous menu without storing the displayed parameter.

To exit the hidden menu, repeatedly press Key SW4 until you return to stand-by mode.

ALARM MANAGEMENT

In the event of an alarm signal, the machine will display one of the following flashing codes and will emit 10 beeps every 60 seconds, until any key is pressed to return to stand-by mode.

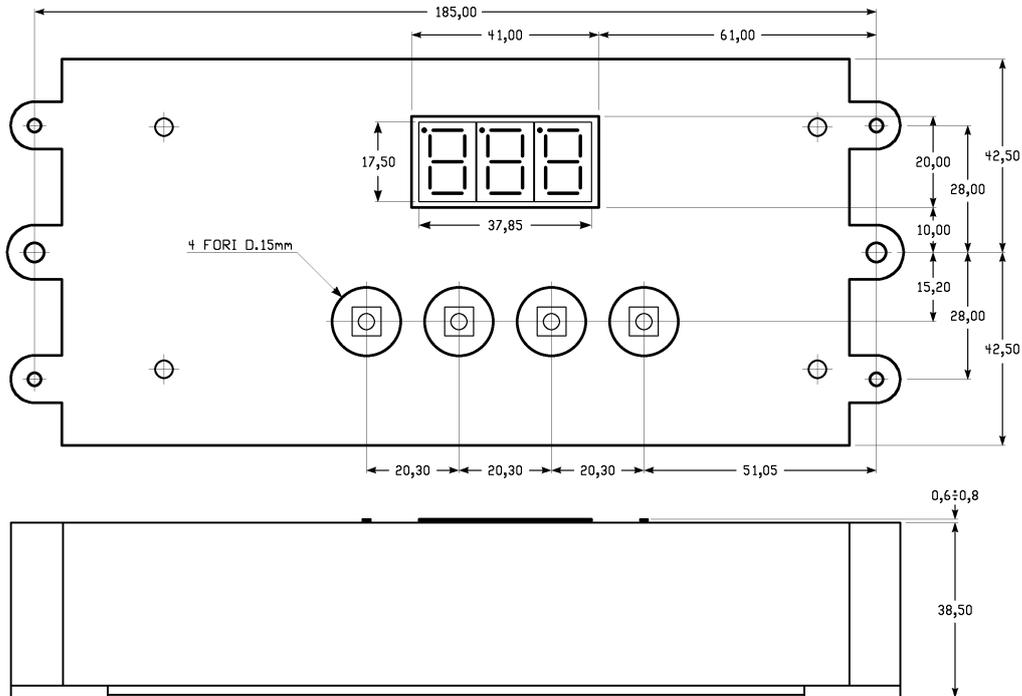
Er0: Error signaled in the presence of malfunctions related to ultrasound. It may be due to an incorrect connection or a failure on the board. The same signal also occurs when the temperature protection of the base board intervenes.

Er1: Error signaled if, in pre-heating, at the end of 60 minutes the system has not reached the desired temperature yet. It may be due to a failure of the resistance, to an incorrect connection of the same or to its under-dimensioning with respect to the required temperatures. It is suggested to try to restart the cycle, check the temperature at the beginning, and after 5-10 minutes: if it has increased, it means that the alarm did not indicate a fault but the failure to reach the desired temperature within the set time-out 60min (for example if the starting water temperature was too low compared to the desired one).

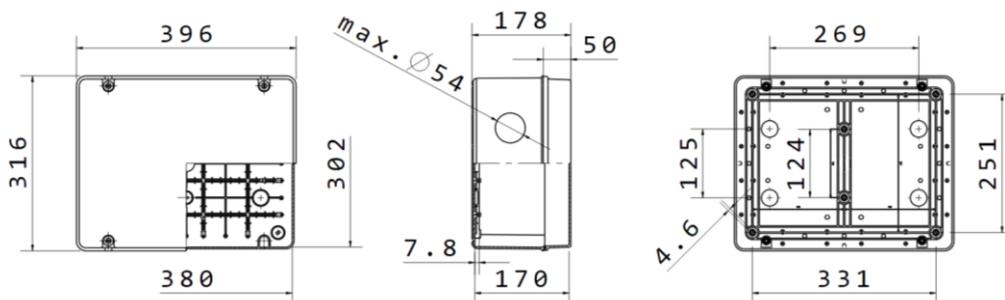
Er2: Error signaled in the presence of malfunctions related to the temperature probe. Carry out the appropriate checks on the probe; in the meantime, it is possible to carry out cold washing cycles by deactivating the temperature via the dedicated menu.

In the presence of the above alarms, please contact us at our contact details.

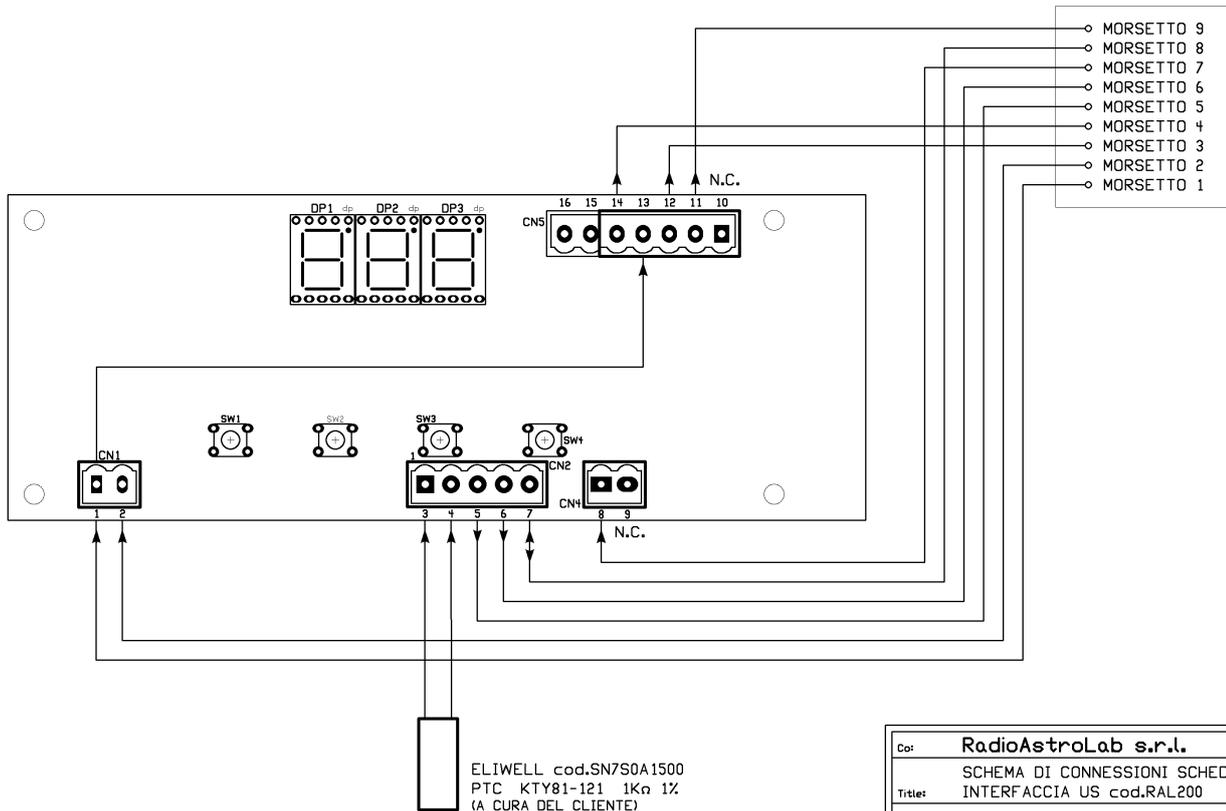
Interface board dimensions (in mm):



External dimensions in mm of the generator:



User interface board RAL200 connections diagram:



Co:	RadioAstroLab s.r.l.
Titolo:	SCHEMA DI CONNESSIONI SCHEDA INTERFACCIA US cod.RAL200

Ultrasonic generator board RAL730D connections diagram:

