

# Muffle Furnace

SX2-N Series

## User Manual



## Index

1. First use.....	1
2. Briefing of the product .....	3
3. Operation.....	5
4 .Trouble Shooting .....	7
Packing list .....	7

# 1. First use

## Installation requirements and safety tips

### 1.1 Getting started (Installation requirements)

The incubator should be installed in following conditions;

1. Dry, clean and stable work table with a flat horizontal surface;
2. Respect minimum spaces around instrument as **50 cm**;
3. Room temperature from 15 °C(59°F) to 30 °C (86°F), and relative humidity no higher than 85%;
4. Atmospheric pressure:80KPa~106KPa;
5. There is no strong vibrations and strong electromagnetic fields around the incubator;
6. There is no strong airflow around the incubator, when the ambient air should be forced flow, airflow should not be blowing directly on the incubator;
7. There is no non-corrosive substances and high concentrations of dust around the instrument;
8. The incubator should avoid direct sunlight or other heat source;
9. Power supply socket with earth connection;



### 1.2 Instruction for Safety

#### 1.2.1 Dangerous!

**(Possible to cause serious loss to properties or injuries to personages)**

1. The Product must be safely grounded and kept away from electromagnetic interference source (make sure not to use the ZL or neutral line as the earth wire).
2. Before use, make sure that the power supply has the voltage in compliance with the requirement of the Product.
3. This product should be installed single-phase three-wire power socket, and make sure the plug and socket is properly grounded.
4. Plug and socket could connectors very convenient, and the socket with circuit breaker could power off easily.
5. With the production running, it is not allowed to pull out and plug in the power plug at random without turning off the power switch.
6. Random extension or cutting of the product's power cable is prohibited.
7. Unauthorized repair is not allowed and such authorized repair should be carried out by the special personage.
8. The steel cylinder for carbon dioxide arranged by the user is a pressure vessel, which shall

comply with the national codes for management of pressure vessels.

9. The electric furnace in the process of using the temperature or high temperature ( $\geq 300\text{ }^{\circ}\text{C}$ ) could not open the door or easy to cause the furnace door and furnace cracking affect the service life;

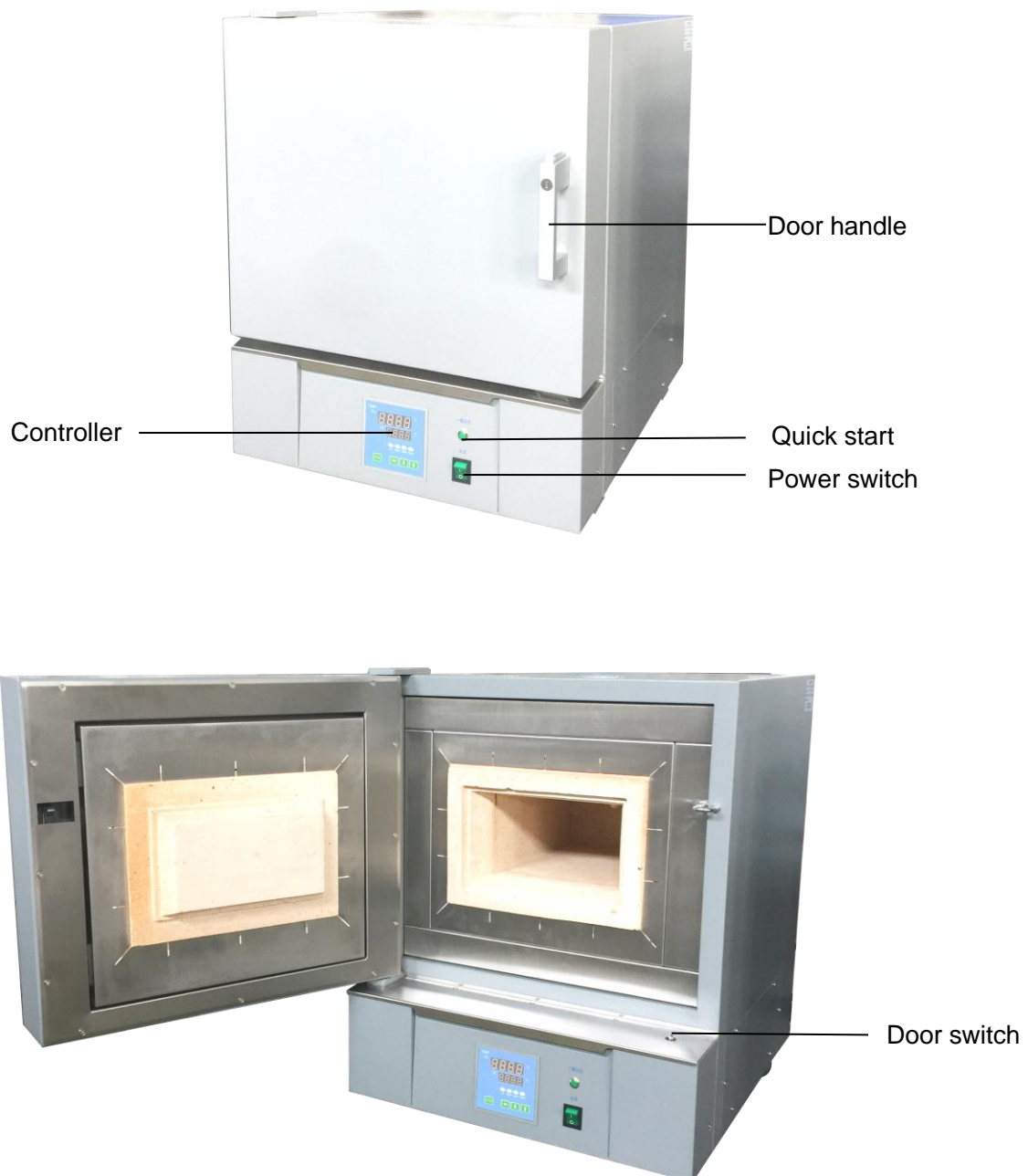
## **1.2.2 Warning!**

**(Possible to cause losses to properties or injuries to personages)**

1. Make sure to read and understand thoroughly the Product's Operating Instructions before the operation may be carried out.
2. To take out the power plug, make sure not to pull directly the power cable.
3. The power cord must be removed from receptacle when any of the following occur:
  - When replacing the fuse.
  - When the product is waiting for overhaul due to faults.
  - When the product goes out of service for a long time.
  - When the product is being moved.

## 2. Briefing of the product

### 2.1 Instrument parts introduction








## 2.2 Specifications

Model	Max Temp(°C)	Chamber Size WxPxH(mm)	Capacity	Power	Input Power
SX2-2.5-10N	1000	120x200x80	2L	220V/50HZ	2.5KW
SX2-4-10N	1000	200x300x120	7L	220V/50HZ	4KW
SX2-8-10N	1000	250x400x160	16L	380V/50HZ	8KW
SX2-12-10N	1000	300x500x200	30L	380V/50HZ	12KW
SX2-2.5-12N	1200	120x200x80	2L	220V/50HZ	2.5KW
SX2-5-12N	1200	200x300x120	7L	380V/50HZ	5KW
SX2-10-12N	1200	250x400x160	16L	380V/50HZ	10KW
SX2-4-13N	1300	150x250x100	4L	220V/50HZ	4KW

## 2.3 COMMANDS and DESCRIPTION



1. The  button permits the working parameters setting
2. The  button permits to change quickly the digital value (Program, units, tens, etc.) of the parameter you are editing.
3. In combination with the  key allows access to menus with password.
4.  and  adjustment buttons allow you to increase or decrease the value of the operating parameter being edited.

## 3. Operation



### 3.1 Switching on the instrument

1. Connecting the power cord to a power outlet with a protective ground connection.
2. Turn on the instrument by pressing the ON / OFF Button and the display will light up. The display shows the initialization sequence and then the instrument is ready for use.


NOTE: Every time you turn the instrument beeps intermittently, the icon of visual alarm and the word "end" appear on the display, indicating that a heating cycle had been done before. Press any button to silence the audible signal and the icon appears.

### 3.2 Setting of parameters





#### 3.2.1 Working temperature


1. When the instrument is switched on, pressing  button, to set temperature value PV shows . Set the desired temperature value (in Celsius degrees) pressing keys.

2. It's possible a quick movement between the digits using the  button.

3. Confirm the set value with another press of  button.

#### 3.2.2 Working time



1. After confirming the temperature, the last value of the set time (timer), Pv shows  Set the desired value, by pressing  or  keys. It's possible a quick movement between the digits using the  button.



2. Confirm the set value with another press of  button.

NOTE: the value indicates the operating mode "continuous", that means once you start the operating cycle by the START / STOP button, it continues maintaining the set temperature until it is stopped manually (START/STOP)

3. If you set a value of time, such as 1 hour, the instrument will reach the set temperature and maintain it for an hour.

### 3.3 Start/stop heating cycle

1. After setting the operating parameters, pressing  and  for few seconds button with long pressure (4-5 seconds), the heating cycle starts for the defined time in hh:mm or continuous (00:00). The word “end” at the top right corner of display disappears, the message RUN appears in the bottom left corner and display shows contemporary: timer, temperature measured inside the chamber, set temperature and fan speed if present (see Picture 4).


2. At any time, you can always manually stop the cycle by pressing the pressing  and  button with long pressure (4-5 seconds).

3. Once the set time or after manual stop, the instrument beeps intermittently, the icon of visual alarm and the word "end" appear on the display. Pressing any button, it's possible to silence the audible signal and the icon appears.

**NOTE:** the acoustic signal will not end until it is stopped by the operator, but the heating cycle is terminated so for the samples inside the instrument will remain exposed to the internal temperature the chamber.

### 3.4 Functions with password access

#### 3.4.1 Access to menu with password

1. Simultaneously pressing the  for 4 seconds, you can access some functions and parameters that are password protected.
2. To access these submenus and avoid mistakenly entering in the operating parameters setting, it is recommended to firstly press the SHIFT key, keep it pressed, and then press the SET / PROG for few seconds.
3. After have made this keys combination, on the right top part of display instead of word TIME, “Lk” (lock) appears close to “0000” (password).

Below the passwords and access sequence to the various parameters/functions.

PASSWORD	FUNCTION / PARAMETER	DESCRIPTION
0003	tm	Safety temperature limiter for samples protection
	Po	Restart mode after absence of power supply
	AL	Temperature range for over temperature alarm
	Pb	Temperature offset on single point
	PK	Temperature offset on the entire ramp
	PA	Temperature offset of the room temperature probe

- Please don't change parameter value not listed above.



## 4 .Trouble Shooting

Description of Breakdown	Assumption of reasons for breakdown	Method for troubleshooting
No power supply upon start-off (the indicator is not lit)	There is no electricity at the power socket or the plug cable is not well connected	Repair
	The box's power cable is broken or the plug is not properly connected	Repair or re-plug
	Power switch is out of order (or not on)	Replace or turn on the power switch
	Fuse is burnt out	If it burns out again after replacement, it is necessary to check the parts and repair before re-start
Meter fails to display	Wire is off or meter is out of order	Connect properly the wire and replace the meter
PV screen displays " _ _ _ _ "	Thermo-couple is off or wire is off	Replace or repair the thermocouple
PV displays low value	Thermo-couple is short-cut	Check and eliminate
Temperature out of control	Solid relay or trigger element is out of order	Replace
No heating	Door switch is not properly contacted or is out of order	Close properly or replace the oven door
	Meter is in the ending stage of time control	Reset the timing or keep ST=0
	Thermal controller's HEAT indicator is lit, but there is no heating	Replace the damaged solid relay, trigger or thermal controller
	Heating cord is out of order or wire is off	Replace or connect properly
High thermal control difference or with static error	P, I, D, Ar parameter is irrationally set	Correct as per Specifications
	Sensor is not properly contacted, causes contact resistance or is out of order	Reconnect or replace the wire

### Packing list

No.	Type	Name	Unit	Qty.	Remarks
1	Document	Operating instructions		1	
2	Document	Packing list		1	
3	Spare part	Insulation gloves		1	

The articles in this list conform to those loaded in the box.