

SG2 Instruction Manual
2021



SG2 Instructions



European Declaration of Conformity.

**Kilncare Limited, The Kiln Works, 907 Leek New Road, Baddeley Green,
Stoke on Trent, Staffordshire, United Kingdom, ST2 7HQ.**

We declare that the equipment described below was manufactured ourselves to comply with directives listed.

We do not give any assurance that the equipment is suitable for any purpose other than that listed below and must be operated and maintained in accordance with our operating instructions.

Products. SG2 kiln.

Directives.

LVD - Low Voltage Directive 2006/95/EC.

EMC - Electromagnetic Compatibility Directive 2004/108/EC.#

##The equipment is intended for use only in premises having a service current capacity of 100 A per phase, supplied from a distribution network having a nominal voltage of 400/230 V,

The user should determine in consultation with the supply authority, if necessary, that the service current capacity at the interface point is sufficient for the equipment.

Harmonized Standards.

BS EN 1088:1995+A2:2008, BS EN 55014-1:2006, BS EN 55014-2:1997.

Description. Stained Glass Kiln.

Purpose of use.

Stained glass work and glass colouring up to the maximum temperature stated on the kiln data plate.

Product serial number. As per affixed data plate.

Manufacture year. 2020.

Technical documentation is held for this product.

Lee Sherwin,
Director,

Electricity

The SG2 meets all Electrical Safety Directives,, however the kilns are electric and as such, certain measures should be taken.

Keep the kiln dry.

Never attempt to remove any of the kiln cover panels or do any repair work when the kiln is plugged into a mains electricity socket.

Never use the kiln if external cables are damaged.

Have the kiln tested by a competent person at least every 12 months.

Never turn the power on to the kiln when the KCR2 is not plugged in.

Hot Surfaces

The kiln will have hot surfaces. Do not touch the kiln when it has been on for any period of time as the case temperatures will rise with time.

Keep pets clear at all times.

Keep the kiln clear of flammable items such as curtains etc.

Your new arrival

For your records

Date of purchase. _____

Company purchased from _____

First date of use _____

Unpacking your kiln

Once unpacked, please show consideration to the environment when disposing of your kiln packaging.

Where to install your kiln

Position the kiln allowing a minimum of 30cm clearance around both sides. The kiln casing will get hot and so any combustible material must be kept at a safe distance. Never leave combustible materials on the kiln lid or touching the

kiln during a firing.

Do not site the kiln close to flammable items such as curtains etc.

The floor or bench must be capable of carrying the weight of the kiln. The SG2 does have air clearance under it and so there should be no need to protect the bench top, however, if your firings are to be prolonged then it is advisable to sit the kiln on a heat resistant material.

Consideration must also be given to the ceiling area above the kiln as heat will radiate upwards from the kiln.

IMPORTANT. The external panels of the SG2 will see high temperatures, so careful consideration must be given to siting with regard to the safety of children and pets. It is advised that the kiln is left untouched until the kiln has finished it's given program and fully cooled.

Remember, whilst the kiln is cooling it may be possible that the external case temperature actually increases.

Do not site the kiln outside.

It is advised to site the kiln in a room that has ventilation.

Optional Stand

If you have chosen the optional stand it will have been delivered with the kiln in "flat pack" guise.

You will have 2 x shelves, 4 x legs, 32 pins and 32 locking nuts.

Note that the fixing holes in one of the shelves are wider apart than in the other. The shelf with the wider holes is the top shelf.

For best results in achieving the flattest possible stand for the kiln, we recommend that the stand is positioned in its final position with all of the pins located and the locking nuts only "pinch" tightened. Next, place the kiln onto the stand. The fact that the pins are not fully tightened will allow the weight of the kiln to level the stand. Once the kiln is in its final position the locking nuts can be fully tightened.

Electrical connection

The SG2 comes fitted with a 13 amp plug top fitted. It is designed to work from standard 230v socket outlets.

With the power to the kiln turned off, unplug the KCR2 then plug the KCR2 back in to eliminate any mis-connection. If the above appear correct contact Kilncare.

KCR2 shows an ERROR message.

Consult the KCR2 manual and contact Kilncare.

Plug top is getting hot.

The plug top will get slightly warm with use but if it is getting hot consult a qualified electrician to test the condition of the socket outlet.

A crackling noise can be heard when the kiln is firing.

This will be a loose connection and needs to be fixed immediately by a competent person.

Continued use will almost result in the connection failing.

The stainless steel shelves are warping as they heat up.

If the stainless steel shelves heat up too quickly, it is possible that they could warp. This warp, if present, may not be favourable to the quality of work. Slow the first 200c or so, to a temperature of 200 and then carry on with the firing as scheduled from the 200c point.

Back up

We pride ourselves on our back up and after sales service and so in the unlikely event of any problems please do not hesitate to call our staff for friendly help and advise.

Contact us at

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Staffordshire,
United Kingdom,
ST2 7HQ,**

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Web www.kilncare.co.uk

To forward a program

At any time the controller can be made to skip to the next segment. To do this, press and hold the “up” key for 4 seconds. This can be useful if the pause button has been used. It may be that at the end of the manual pause you do not require the kiln to finish the rest of that section and so the program can be moved on to the next section or end using this key.

To view entered program data

This can be done whether the kiln is firing or not. Press the “step key”, each press will forward the display to the next section.

To alter program data while the kiln is firing

Press the “step” key until the desired value is displayed. Alter it using the “up” or “down” keys.

Example program

If you require the kiln to start a 7am, fire as fast as it can to 800c then hold for 10 hours. It would be programmed like so. We will presume that it is being programmed at 5pm the evening before. We will make this program 4.

Press “step”. Use “up” or “down” to select “Pr 4” in the main display.

Press “step”. Use “up” or “down” keys to enter “FULL” for ramp rate.

Press “step”. Use “up” or “down” keys to enter “800” for temperature.

Press “step”. Use “up” or “down” keys to select a dwell time of “10.00” hours.

Press “start” Use “up” or “down” keys to select a delay time of “14.00” hours.

Main display will show “14.00” with a flashing dot as the time counts down.

After 14 hours the kiln will start.

For more detailed KCR2 instructions consult the KCR2 manual supplied separately.

Kiln trouble shooting

KCR2 has no lights

Check that the socket outlet that the kiln is plugged into is turned on.

With the kiln unplugged, check the cable tube from the kiln to the controller for damage.

If the above appear correct contact Kilncare.

KCR2 is working correctly, is showing that the kiln is receiving power but the kiln is not heating up.

With the kiln unplugged, check the cable from the kiln to the controller for damage.

It is not advisable to use the kiln from an extension lead.

The electrical supply MUST have a sound earth connection.

It is advisable to have your chosen socket outlet tested by a qualified electrician prior to use to ensure its sound condition.

Portable Appliance Testing

It is possible, depending on the type of establishment that the kiln is to be used in, that the kiln may be required to be Portable Appliance Tested along with other electrical items.

It is important that the KCR2 controller is disconnected before testing or there is a risk of the high voltage associated with the test effecting the controller permanently.

On initial testing, the kiln may show a low insulation resistance reading, this is normal and will improve as the kiln element dries. Kilns are porous by nature and will absorb moisture from the atmosphere, especial if the kiln is new or has had a period of inactivity.

Periods of testing will be stipulated by the testing body.

Initial firing

Before using the kiln it is advisable to fire the kiln empty to a temperature of 600 degrees centigrade at a rate of around 200 degrees per hour. This will dry and “settle” the kiln.

On the first firings, a slight odour will be emitted, this is the remnants of binding resins in the insulation boards and should stop after two or three firings depending on temperature of the firings. The may also be the burning off of any remnants of grease left on the stainless steel during manufacture.

Load the stainless steel rack and all shelves in the kiln.

For this initial firing we recommend that the kiln is in a well ventilated area.

We suggest that prior to the initial firing, that you use this instruction manual and the controller manual to ensure you are familiar with all aspects of the kiln and usage of the KCR2

We also recommend that the kiln controller is set to fire the kiln at full power to a low temperature and then end, say 50 degrees, whilst being monitored to ensure that it is switching off the kiln and that no problems have occurred during transport.

At such low temperatures the kiln will overshoot the set point temperature by some amount.

This is normal as the controller is set to full and not a controlled rate of climb. It may also cause the KCR2 to show Error 5, again, this is normal as the controller may believe that the overshoot is caused by the kiln having a fault.

This test is to ensure that the KCR2 shuts the kiln power off, whether it be due to the correct temperature being reached or by it going into fault mode.

To clear the Error 5 if it appears, turn off the power to the kiln, leave it for 10 seconds then re-power.

Control

The KCR2 controller supplied with this kiln has already been set and the characteristics of the kiln have been entered in to it.

The kiln and the KCR2 will have already been put through a test firing at the factory.

Please read the instructions on control before starting to use your SG2.

The controller plugs into the kiln at the socket at the rear right hand side of the kiln. It will only plug in one way.

Once fitted close the clamp to ensure sound connection.

The small blue stand supplied in your SG2 is for the KCR2. It can be used to sit the controller at a convenient angle on a bench top or to mount the controller to an adjacent wall using the fixing holes in the rear of the stand.

Operation

Loading

The SG2 can be used with or without the stainless steel rack and shelves depending on preference or requirement.

Also, if required, the rack can be used to hold ceramic shelves in place of the Stainless Steel ones. These ceramic shelves would be an optional extra and are not provided with the SG2.

If firing the kiln without the stainless steel rack and shelves:

Load the kiln with the glass items that are to be fired.

Press "step". The main display will show a temperature, for instance "85", "FULL" or "END". The segment display will now show "2", this is segment 2. The ramp light will illuminate above the main display. This segment is how fast you would like the kiln to reach its second temperature. At this point, if the kiln is required to finish, press the "down" key until "END" is shown in the top display. End is below 0000 on the main display.

All the above is segment 1 and the start of segment 2, the controller has 9 segments and so for more complicated firings carry on as above by setting the next time, temperature and dwell. When you have programmed all you require, select "END" at the start of the following segment.

After a few seconds the display will time out and show the kiln temperature.

To run a program

Press "step" the main display will show "Pr" and the program number. Use the "up" or "down" keys to select the program number required.

Press "start" and the main display will show a time, for instance "00.10" or "PASS". The segment display will show "1" and the time light above the main display will illuminate.

Delay is the time in hours and minutes before the kiln will actually start. Set the desired time using the "up" and the "down" keys. If no delay is required hold the down key until the display shows "PASS". Pass is below 0.00. The kiln starts automatically after a few seconds if no time is entered.

If a delay has been set the main display will act as a count down timer showing the hours and minutes remaining before the kiln starts to fire. A flashing dot in the main display will indicate the timer is running.

As the kiln fires the main display will show the kiln temperature and the segment display will show the segment number. If the kiln is climbing, the upward facing ramp triangle will illuminate, the downward facing triangle will illuminate on a cooling ramp and when the kiln is holding temperature both will illuminate.

To stop a program

Press "start/stop".

To pause a program

Press and hold the "down" button. The top display will alternate between the current temperature and "Paused". As the program pauses two confirmation beeps will be heard.

This temperature will be held indefinitely or until the pause button is pressed again. When the pause is stopped the kiln will continue through the program from where it was paused. Again a confirmation beep will be heard.

Buttons index

Start / stop 

Step 

Up 

Down 

Pause Hold  for 4 seconds. To un-pause hold again for 4 seconds.

Energy used  and  when not in programming mode.

To set a program

The KCR2 has 9 settable programs. Each program has 9 segments.

Press the “step” key. The main display shows the program number, for instance “Pr 1”. The segment display shows “1”. Use the “up” or “down” keys to select the program required.

Press “step”. The main display will show a ramp rate, for instance “85”, “FULL” or “END”. The segment display will show “1”, this is segment 1. The ramp light will illuminate above the main display. This segment is how fast you would like the kiln to reach its first temperature in degrees centigrade per hour. A slow firing might require the first temperature to be reached “50” degrees per hour. Whilst a fast firing would be set to reach temperature as quickly as possible so the rate required would be “FULL”. “FULL” is above “1000” on the display.

Press “step”. The main display will show a temperature for instance “600”. The segment display will still show “1” and the temperature light will illuminate above the main display. This temperature is in Celsius. This temperature is your first temperature. Use the “up” or “down” keys to select.

Press “step”. The main display will show a time, for instance “0.30” or “PASS”. The segment display will show “1” and the time light above the main display will illuminate. Dwell is the time in hours and minutes that you require the kiln to hold the first temperature.

Remember glass will stick to the bricks so a separating medium must be used. This can take many forms including fibre paper or a refractory batt (shelf) covered with batt wash.

It is not necessary that a kiln shelf is used and the work can be placed straight on the kiln floor if a separator is used, such a fibre paper etc to keep the glass from sticking to the kiln floor bricks when hot.

If a kiln shelf is to be used, it does not need to be raised from the kiln floor and the batt does not need to have a separator between itself and the kiln floor bricks.

The glass will need a separator between itself and the batt for the same reasons as it needs to be separated from the brick.

The kiln bricks do not need to be painted with battwash, just protect the area where the glass can touch with a separator.

Once the kiln has been loaded with the glass to be fired, close the door and clamp shut the clasp to ensure the lid seal remains tight throughout the firing. Plug the kiln into a 13 amp wall socket outlet.

If no display is illuminated on the controller then turn on the controller using the black switch on the underside of it.

Enter the firing cycle and start the KCR2.

If firing the kiln with the stainless steel rack and shelves:

Load the stainless steel rack into the kiln. The rack will work either way up.

Load the work to be fired onto the stainless shelves whilst they are external of the kiln.

As above, a separator between the glass and the shelf is recommended.

Load the shelf into one of the shelf positions on the rack.

All of the shelves can be used in one firing by using the empty rack positions.

Important

If the stainless steel shelves are to be used then it is important that the initial section of all firings be taken at a ramp speed of **200c per hour to a temperature of 200c**, before continuing with the rest of the cycle at the normal ramp rates required. This will allow the stainless steel shelves to expand and remain flat. If the SG2 is not slowed then there is a risk that the shelves will

twist, However this twist will right itself once the shelves are cool, it can be detrimental to the quality of the work produced in certain circumstances.

What to expect on the initial firing

Once the KCR2 has been started and after a slight delay a red dot will appear on the controller display and a quiet click will be heard from the KCR2. This is the internal relay of the controller turning the kiln power on. This click will be heard to click on and off at various points through the cycle as the KCR2 regulates the kiln temperature.

As mentioned on previous pages, a slight odour will be released and the insulation binders burn out and any excess grease burns from the stainless steel inside the kiln,.

Looking after your kiln

REMEMBER, the kiln is for stained glass applications only. It can also be used for low temp applications such as glass bead batch annealing. The kiln is safe guarded from firing at temperatures that are needed for fusing etc.

When shutting the kiln door, gentle operation will prevent accidents.

Depending on use, it is advisable to check all electrical connections are tight every 6 months or so and that no cables are discolouring due to heat.

Element Replacement.

The SG2 elements are extremely robust, however, care must be taken to apply too much pressure the threaded element end.

In the event of an element failure, replacement is easily done.

Firstly, unplug the kiln from the electrical supply then unscrew the rear cover panel and remove the panel.

Determine which element has blown, (for this a circuit tester may be required). There are two elements in the SG2.

Disconnect both ends of the element.

Undo the gland cap and remove it. This will reveal the olive that will be clamped tightly around the end of the element outer sheath. Use a pair of pliers or similar to grip the olive, and with alternate rotating movements, slide the olive off the element outer sheath. There should be no need to unscrew the gland plate that the two glands are fixed to. Once both olives are removed, the element can be removed from the chamber of the kiln.

Slide the new element into position. The ends of the element may need some guidance when being re-located through the gland.

Once in position, the olives can be slide over the external sheath of the new element and then pushed fully into position.

Once the element is sitting in its correct position and the olives are on, the gland gaps can be re-fitted and finally tightened. A little adjustment may then be necessary in the chamber to neatly line up the elements, although this is not vital.

Re-connect the elements then replace the rear panel.

A slight odour will be emitted during the first firing as the element burns out binders in the element seal compound.

KCR2 instructions

On power up controller will go into test mode then after a few seconds will settle down and show kiln temperature in the top display. Before starting, make sure that only the top display is illuminated, if any other lights are lit press the "start" key to extinguish them.