



KC55 Range
Instruction manual.

2022

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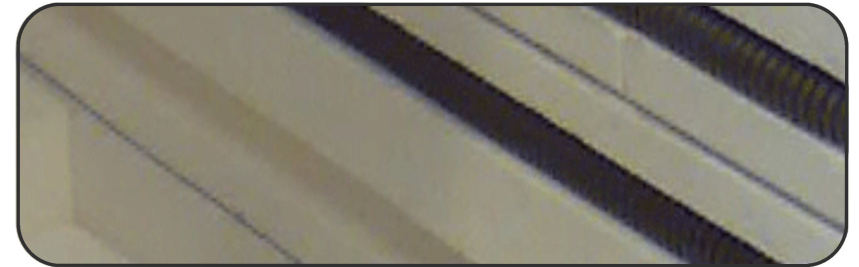
Kilncare



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KILNcare

KC55 Range Instructions



Thank you for choosing to purchase one of the KC55 range of kilns for your ceramics work.

We hope you will have many years happy use out of your kiln.

The KC55 range is very much a tried and tested formula. One that has seen this range of kilns provide reliable service in both educational and studio use for over 2 decades.

Please read this manual fully to get to know your kiln before use.

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Safety notices

Your KC55 is designed and built to meet all European Directives and British Standards.

However, as with all kilns, there are certain measures that you must take to achieve optimum safety.



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.

KC55 range of kilns.

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.

Ceramics kiln

Purpose of use.

Firing of ceramic items up to the maximum temperature stated on the kiln data plate.

Product serial number.

As per affixed data plate.

Manufacture year.

2022

Technical documentation is held for this product.

Lee Sherwin,
Director,

Notes

Electricity

The KC55 range meets all Electrical Safety Directives, including a door safety Interlock switch. 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 covers or do any repair work when the kiln is plugged into a mains electricity socket or with the isolator turned on.

Never use the kiln if external cables are damaged.

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

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 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 KC55/04 does not 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.

Also there will be high temperatures vented through the roof chimney if it is used to cool the kiln especially. For this reason we recommend a minimum of 800mm clearance between the roof of the kiln and the room ceiling.

If in any doubt use a vented canopy or some other form of heat protection for the room ceiling.

IMPORTANT. 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.

KEEP PETS AND CHILDREN AWAY FROM THE KILN DURING ITS FULL CYCLE AND UNTIL COOL.

Do not site the kiln outside.

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

After the first couple of firings there is almost no emissions from the kiln but there will always be vapour etc released by whatever you are firing in the kiln, especially stains so room ventilation is always advisable.

The type of room venting required depends on many factors and so it is best to contact a ventilation specialist if in any doubt.

Electrical connection

The KC55/04 comes fitted with a 13 amp plug top. It is designed to work from standard 230v socket outlets. It is advisable to have your chosen socket outlet tested by a qualified electrician prior to use to ensure its sound condition

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

All other KC55 kilns will require connection to a suitable electrical supply.

If the kiln is to be used on a 3-phase supply a neutral must also be supplied.

The electrical supply **MUST** have a sound earth connection.

Your KC55 range kiln is supplied ready for connection to a 3-phase supply. If your supply is single phase then use the connection link fixed to the door of your connection panel. The link fits across the 3 fused terminals as shown Opposite in diagram 1.4. Make sure to tighten all 3 screws. We recommend that the centre terminal is then used to make your live connection with the wire siting under the fork rather than on top of it..

The terminals are for use with cable of a size up to 10mm.

REMEMBER that if the kiln is then re-connected to a 3-phase supply then the link **MUST** be removed.

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 certainly result in the connection failing.

Kiln is not reaching temperature or is slow.

This could be either an element failure, a burnt connection a loss of supplied power or a component failure.

Get the kiln checked by a competent kiln engineer.

Cracks in the kiln brickwork.

Minor cracking is to be expected, see page 10 of this manual.

Kiln is beeping and will not fire or is cooling down.

The KCX, internal safety monitor, has triggered which indicates that the kiln has attempted to go above its maximum temperature.

Power down the kiln and contact a kiln engineer for inspection.

Do not use the kiln until it is fully inspected.

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

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

Tel 0044 1782 535915 / 535338,

E-mail sales@kilncare.co.uk, Web www.kilncare.co.uk

Trouble shooting

Control has no lights

If the "mains on" light is not illuminated on the kiln :-

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

Check that the controller is securely plugged into the kiln.

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

If the "mains on" light is illuminated:-

Check that the door is fully closed and the interlock is properly engaged.

Check that the controller is securely plugged into the kiln.

With the mains turned off a competent person should be used to check the condition of the 2 glass 1 amp fuses in the rear floor panel of the kiln. Access to these fuses is by removing the rear panel from the kiln.

Whilst there, the heat fuse will need to be checked. For advice on checking items inside the rear of the kiln it is advised that the competent person contact Kilncare.

If the above appear correct contact Kilncare.

The control 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.

Check that the controller is securely plugged into the kiln.

With the mains turned off, a competent person should be used to check the condition of the internal wiring and electrical contact points.

If there is no obvious damage then the kiln will need to be checked over with an electrical meter.

Controller shows an ERROR message.

Consult the controller manual and contact Kilncare.

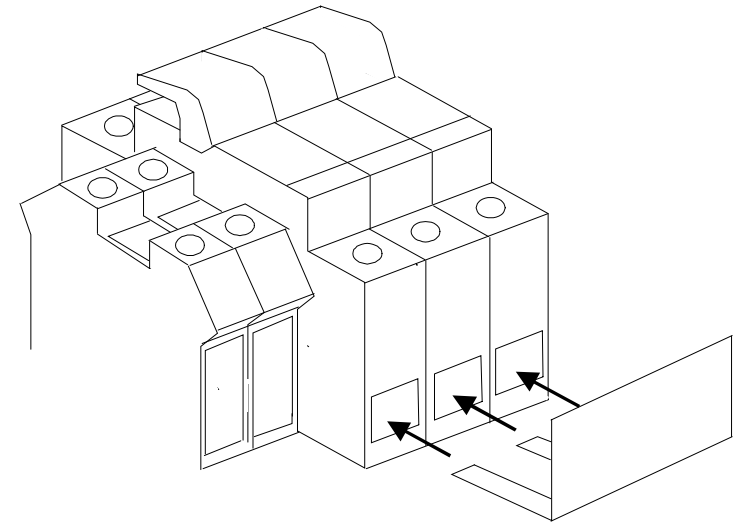
Plug top is getting hot on 3kw models.

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 and the plug top.

The black and green terminals are for Neutral and Protective Earth respectively.

As always we recommend that the connections are done by a qualified electrician.

Diagram 1.4



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 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 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.

KILNS AND R.C.D. "TRIPS"

Due to the reasons stated above and to insulation material properties, a certain amount of leakage to earth will probably be evident, therefore the fitting of a 30ma R.C.D. in the circuit can create a fault condition at low temperatures if the kiln is damp, at higher temperatures as the kiln insulation heats up, when first fired or used after a long period of inactivity.

This problem is relatively rare but can be solved by the fitting of a 100ma R.C.D.
Consult us or a fully qualified electrician for advise.

Connecting the controller

The controller supplied with your kiln will be fitted with a connecting plug. It will mate to a matching socket fitted to the kiln, usually mounted at the rear of the kiln but it could also be on the side or front depending on kiln specification. The socket is sided and so will only allow the plug to be inserted in the correct manner.

Once the plug is inserted lock it into place using the securing clamp. Always ensure the mains power to the kiln is turned off before fitting or removing the plug.

Initial firing

Before using the kiln it is advisable to fire the kiln empty to a temperature of 800 degrees centigrade at a rate of around 100 degrees per hour. Leave the top bung out of the top vent. This will dry and "settle" the kiln.

Also if you have purchased the kilns furniture set with the kiln it is advisable to load the furniture into the kiln for drying. The kiln furniture will have been cut with a wet cutter and invariably contains a large amount of water. Load the kiln furniture using the props supplied to allow air space between the batts.

On the first firings, a slight odour will be emitted, this is the remnants of binding resins in the boards and should stop after two or three firings depending on temperature of the firings.

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 controller.

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

Preset Programs

P r o g	Prog. type	Seg. 1 Ramp c/hr	Seg. 1 Temp	Seg. 1 Hold Hr/min	Seg. 2 Ramp c/hr	Seg. 2 Temp	Seg. 2 Hold Hr/min	Seg. 3 Ramp c/hr
11	Slow Bisque	60	600	00	FULL	1000	00	END
12	Normal Bisque	100	600	00	FULL	1000	00	END
13	High Bisque	100	600	00	FULL	1140	00	END
14	Brush-On Earthenware Glaze Cone 6	100	300	00	FULL	1000	00	END
15	Standard Earthenware Glaze	100	300	00	FULL	1100	00	END
16	Earthenware High Temp. Glaze	100	300	00	FULL	1140	00	END
17	Mid-Range Stoneware Glaze	100	300	00	FULL	1200	00	END
18	Standard Stoneware Glaze	100	300	00	FULL	1245	00	END
19	Onglaze	100	400	00	FULL	780	00	END
20	Lustre	100	400	00	FULL	750	00	END

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. Press the “start” key once and the new value will be stored and the

Example program

If you require the kiln to start a 7am, fire at 85c per hour to 600c then full speed to 1060c and no soak. The damper is to be open on the first ramp and then closed for the remainder of the firing.

It would be programmed like so. We will presume that it is being programmed at 5pm the evening before. We will make this program 24.

Press “step”. Use “up” or “down” to select 24 in the top display.
Press “step”. Use “up” or “down” keys to enter “85” for ramp time.
Press “step”. Use “up” or “down” keys to enter “600” for temperature.
Press “Fn” and “Event” to extinguish the event light.
Press “step”. Use “up” or “down” keys to select a dwell time of “0.00” hours.
Press “step”. Use “up” or “down” keys to enter “FULL” for ramp time.
Press “step”. Use “up” or “down” keys to enter “1060” for temperature.
Press “Fn” and “Event” to illuminate the event light.
Press “step”. Use “up” or “down” keys to select a dwell time of “0.00” hours
Press “step”. Use “down” key to select “END”.
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.

Top display will flash program number then “14.00” with a flashing dot. The bottom window will show “- -” and the delay triangle will flash.
The above example is a typical basic biscuit firing with a 14 hour delayed start



Your kiln is fitted with Kilncare’s unique KCX kiln protection module. KCX is an internal electronic monitoring system that protects the kiln from reaching critical overfire temperatures.

If the kiln exceeds its maximum temperature the KCX will trigger and shut the kiln down whilst at the same time sounding a warning beep.

To reset the KCX the kiln would need to be powered down and then repowered but it is strongly advised that a competent engineer inspect for the reason for the KCX trigger before using the kiln again.

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 controller to show an Error message or code, 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 controller shuts the kiln power off, whether it be due to the correct temperature being reached or by it going into fault mode.

Control

The 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 controller will have already been put through a test firing at the factory.

Please read the instructions on control before starting to use your KC55 kiln.

Operation

The vents

Depending on the kiln model chosen the kiln will have a variety of different venting combinations ranging from 1 in the roof to automatic venting in the roof and multiple vents in the door.

However the vents, regardless of combination, all have the same purpose. To release moisture from the kiln while it is drying wear during a biscuit firing, to release vapours from glazes and to aid in cooling of the kiln.

For a biscuit firing the vents in the roof would normally be left out or open up to a temperature of around 600c in order to allow all moisture from the work to be released from the kiln chamber. The door vent need not be opened during this cycle if not required.

After the drying temperature has been reached the vents would then be closed to allow the kiln to reach its final temperature.

For glaze vapour release, the vents will be closed after the glaze has finished releasing.

For cooling the vents can be opened at any point after the final temperature has been reached. At this point it may be of advantage to open the door vents also to increase cooling. However, when and how the vents are opened for cooling is very much a preference action.

After removing hot bungs take care use heat resistant clothes and clothing and to sit the hot bungs on a suitable, non combustible surface in an area that is away from children and pets.

Automatic dampers

If your kiln is fitted with automatic roof vents (dampers) then the operation of these vents is controlled via the controller and is covered in the controller instructions.

Closing the door

Usually there are only one of two types of door catch fitted to KC55 kilns, a swing/turn clamp or a toggle clamp. Once your kiln is ready to fire fully close the door. Gentle operation of the door will ensure less shock to the kiln brickwork.

If the kiln has swing/turn clamps the swing them over the matching locators on the door then gently turn the black twist grip on the swing/turn clamp until the door is closed fully. This needs to be tightened but not using any excessive force, just until the door feels like it is sitting nicely to its seal. These clamps are self adjusting.

If the kiln is fitted with toggle clamps then they are preset at the factory. Close the turn and lift the handle section of the clamp upwards until it hits the door locator then apply more pressure until the clamp locks closed.. If over time the door seal compounds slightly it may be that the clamps need adjusting to maintain a good seal. This is done with two correctly sized spanners. Release the nuts on the toggle clamp plunger pin, close the door and adjust the plunger pin until it applies a gentle pressure to the door when it is in the closed position. Do not over adjust as this will make the clamp difficult to operate and will apply unwanted pressure to the door. To adjust the toggle clamp it does not need to be removed from the kiln body.

The Interlock

On all kilns except the KC55/04 a captive style interlock is used to protect the user from electric shock. The KC55/04 uses an automatic switch to the same integrity. After the door is closed and the clamps set, engage the interlock into its slot in the kiln front. The interlock key is rectangular and will only fit in the correct way. To turn the interlock on, turn 90 degrees clockwise, to disengage turn 90 degrees anti-clockwise. This movement is spring assisted and requires only slight effort. Once it starts to turn it will engage fully with the help of its internal spring, **DO NOT FORCE THE INTERLOCK ONCE ITS FINAL POSITION IS REACHED.** The interlock will not be "any more on" but you may damage the internal mechanism.

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.

Press "start" and the controller will display kiln temperature again.

To run a program

Press "step" bottom display will show "Pn" and the top display will show the program number. Use the "up" or "down" keys to select the program number required.

Press "start" the top display will show kiln temperature and the bottom display will go blank. Press "start" again and the top display will briefly display the Program number then it will begin the program. Depending on the program contents the delay triangle or the ramp triangle will flash and the segment number will be displayed in the bottom display. If a delay has been set the delay triangle will flash and the top display will act as a count down timer showing the hours and minutes remaining before the kiln starts to fire. As the kiln fires the top display will show the kiln temperature and the bottom display will show the segment number. If the kiln is climbing the upward facing ramp triangle will flash. When the kiln is holding temperature the dwell light will flash.

To stop a program

Press "start".

To pause a program

Press and hold the "Function" key then press the "Pause" key. The top display will alternate between the current temperature and " - - ". This temperature will be held indefinitely or until the pause key is pressed again. A warning reminder will be sounded every 10 seconds during the pause. When the pause is stopped the kiln will continue through the program from where it was paused.

To forward a program

At any time the controller can be made to skip to the next segment. To do this, hold the "Function" key and press "advance". This can be useful if the pause button is used. It may be that at the end of the manual pause you do not require

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. Once viewed, press the "start" key once to return the control display to kiln temperature.

To set a program

If whilst in programming mode no buttons are pressed for a few seconds the controller will time out and go back to kiln display.

The KCR32 has 32 settable programs. Each program has 32 segments.

Press the step key. The top display shows the program number, for instance 1. The bottom display shows "Pn". Use the up or the down keys to select the program required.

Press "step". Top display will show a ramp rate, for instance "85", "FULL" or "END". The bottom display will show 1, this is segment 1. This segment is how fast you would like the kiln to reach its first temperature in degrees 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".

If the roof vents are required to be closed during this first ramp, hold the Function key and press the Event key. The event light should illuminate to show the roof vents will be closed. When the event light is not illuminated the dampers will remain open.

Press "step" and the top display will show a temperature for instance "600". The bottom display will still show 1 and a light will illuminate above temperature.

This temperature is in Celsius. This temperature is your first temperature. Use the "up" or "down" keys to select the desired temperature.

Press "step". The top display will show a time, for instance "0.30" or "PASS". The bottom display, again will show "1" and the triangle above dwell will illuminate. Dwell is the time in hours and minutes that you require the kiln to hold the first temperature.

Again, choose by holding the Function Key and pressing the Event key whether your roof vents will be open or closed during this soak period.

Press "step". Top display will show a time, for instance "85", "FULL" or "END". The bottom display will show 2, this is segment 2. This segment is how fast you would like the kiln to reach its second temperature.

Again, choose by holding the Function Key and pressing the Event key whether your roof vents will be open or closed during this ramp period.

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 00. All the above is segment 1, the controller has 32

Loading

Before loading the kiln it is advisable to turn the kiln off at the mains supply, event though your safety is ensured by the door interlock switch.

You may have purchased the kiln with a kiln furniture set or you may be using your existing furniture.

The primary consideration when stacking kiln furniture is stability.

Place 2 of the batts onto the kiln floor pillars so that the floor elements are covered, this is you base to start to build up from.

How and where you place your ware will be very much a matter of preference. If the kiln is supplied with half batts, i.e. two shelves per layer, you may find that 3 props will be suffice or you may be happier using a prop in each corner. There is not fixed way of loading kiln furniture, the important thing is that the batt has adequate support.

When loading the kiln furniture be careful, remember, the batts are harder than the brick wall of the kiln and in our experience a large proportion of kiln wall damage is caused by careless kiln furniture loading.

For obvious reasons, care must always be taken when loading larger objects into deeper kilns to avoid back strain.

What to expect on the initial firing

Once the interlock has been engaged and the power turned on, a click will be heard at the back of the kiln, this is the safety contactor, the red "mains on" light on the kiln should illuminate and the controller should illuminate.

If there is no display on the controller at this point check that the on-off button on the controller is in the "on" position (where fitted).

Once the controller has been programmed and started a second click will be heard and the orange "heat on" light will illuminate. This click and the orange light will simultaneously go on and off as the controller operates the kiln.

The kiln is now firing, ensure that the door clamps are fully closed and that the vent plugs are in or out as required. (or roof dampers in the required position).

As mentioned earlier there may be odours from the kiln.

Kiln brickwork cracking.

After the initial firing small or hairline cracks may appear at various points in the kiln brickwork and possibly again at the first higher stoneware temperatures.

This is normal and is due to expansion and contraction of the kiln bricks. After only a few firings the cracking will stop. Please don't hesitate to call of if you have any concerns about this.

Looking after your kiln

A large contributing factor to element failure is often that debris from general kiln use starts to clog up the grooves that the elements sit in causing them to overheat. This is especially evident in the grooves holding the base elements. Periodically clean out these grooves and remove the dust and debris. This can be done by brushing gently with a suitable brush or by using a filtered vacuum cleaner.

REMEMBER. After the first few firing the elements become less supple and so when cleaning the grooves be gentle with the elements and try not to disturb them too much.

As always when working with refractory materials, wear protective clothing and use a suitable dust mask.

If an element starts to "curl" out of the groove it can be saved but the earlier you try the better the result.

Heat around the area that is starting to curl out with a gas gun and, once the element is orange, ease it back into position with a heat resistant tool.

This repair can result in burns if care is not taken and so if in doubt, contact a recognised kiln engineer.

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

It is advisable to have the kiln periodically checked by a qualified person to ensure all electrical components are in a healthy condition.

Safety contactor circuit

All kilns are fitted with a safety contactor and heat fuse as secondary back up against any failure or incorrect setting of the controller.

KC kilns use an internal protection circuit inside the controller to determine over temperature conditions and so safely shut the kiln power off.

Such protection will protect the kiln, it will not protect the medium being fired from the effects of reaching the pre-set protection temperature.

Kiln control instructions

As standard, your kiln will have been supplied with one of the following two types of control. KCR16 or KCR32.

For full instructions for the controller supplied with your kiln consult the separate instruction manual supplied with the controller.

KCR32 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.

Buttons index

Start / stop 

Step 

Back 

Up 

Down 

Function **Fn**

Advance 

Pause 

Event 