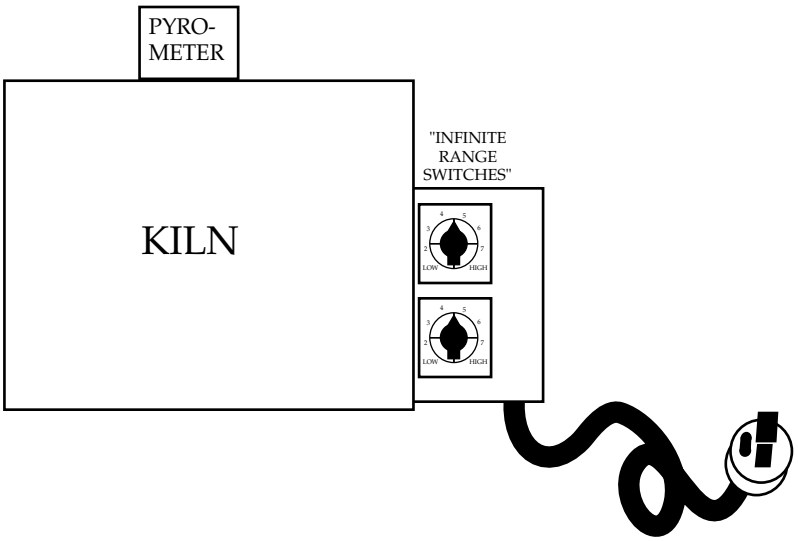
The Joppa Blog: No.1_The Digital Controller

I find it unusual that I would want to start this series with something so far removed from my early glassblowing career. Well it wasn't as bad as pitching pieces of wood into the kiln to keep things warm, but really it was all analog. We used what is referred to as infinite switches or sometimes "Chromalox Switches."

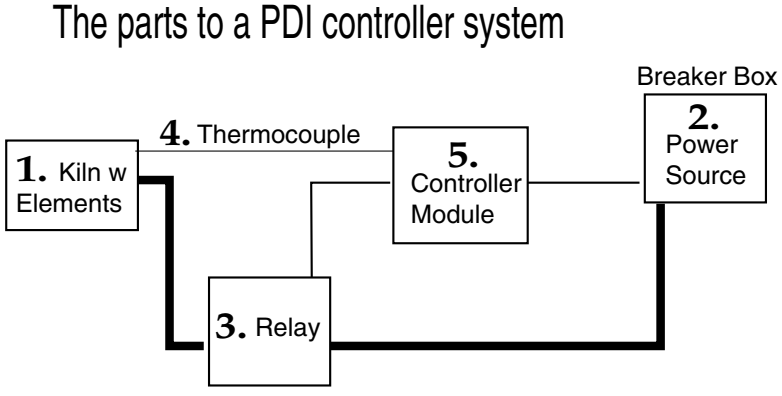
Using this method you had to keep your eye on the ball throughout the day and at turndown time it was a partial shut down for a half hour or so then a full off. For most things this worked fairly well, but then I was making average sized stuff like vases and drinking ware. At some point in the early 1970s I ran into the Penland Glass Guys and some of them were making whopper stuff: glass castings many inches thick and some rather large off-hand blown work weighing upwards to 10 pounds. These guys were using Digitry Controllers.



It took me a while to realize this new direction was something of real interest to me, I think mostly I fought the expense of it cause the Digitry solution ran from maybe 500.00 to 1500.00 depending on how many kilns the unit controlled.Out of shear stubbornness I never did buy a Digitry, but I wanted to experiment with this direction so I purchased a couple of Bartlett controller parts and put them together.

Once I got over the hump of learning how to program them it went fairly smoothly. I made plug and play units for sale. At some point I realized this company's product was mostly for ceramics and lacked a kind of finesse I wanted for the complicated glass firing and annealing cycles. I tried using Fuji and Omega and at some point I discovered the Auber line. I really liked that as it had a large set of steps (30) that could handle anything I could think of to do with it.

Here is the Digital Model, the PDI Controller System:



The Parts: 1. A kiln with electric elements; 2, A power supply; 3, a relay to turn the power on and off to the kiln; 4, A thermometer to sense the temperature in the kiln; 5, A controller to interpret the data and turn the power on/off to the kiln according to a programmed temperature profile.

My purpose in doing this blog idea is not to say, "Hey, I know everything about this stuff, blah, blah, blah." Nope! But I do have a bunch of experience that kinda fills in between the lines, In my own case I was a pretty hard core anti-digital guy who can now say with no apologies that the digital way is 100 times better. The case in point is you can set the controller to 938 degrees and with some auto-tuning be pretty damn sure the kiln will be at 938 degrees. I like that.

Another thing here is I don't want to say point blank that this make of controller is way better than that, etc. Some are always going to be better than others but for various reasons. I will say I have tried more than five types and I prefer to use the Auber Controllers.

For those of you who might want help setting up their own controllers If you buy my kits I give you unlimited tech support. This can manifest in Zoom conferences or most often phone calls. You can send me pictures of your project and I can give you assistance or at least send you in the direction to a positive solution. Here are the kits:

Ramp and Soak Controller Kit #1

For controlling a Kiln using a Solid State Relay

There are five items in this kit:

1. The Auber Syl-2352P, a 30 step Ramp and Soak Digital Controller Module
2. 25 amp SSR (Solid State Relay)
3. Heat Sink with heat transfer paste
4. A 36" Type "K" thermocouple
5. "How to Build Your Own Controller, Version 3.1"

This is a very versatile, easy to program controller, with a step by step manual to explain all the details. Plus we offer you great tech support: call Dudley- 603-456-3569
This is a $240.00 value at a modest savings:

Kit shown at right...$225.00
with additional SSR and Heat Sink....
$285.00

Wiring Diagram Ideas

- 240 Volt, 20 Amp SSR Controlled Kiln (This approach requires an additional SSR and Heat Sink @ 70.00)
- Controlling Large, 3 Phase Kilns (This second approach also requires an additional SSR and Heat Sink @ 70.00)
- 120 VAC Small Kiln With Ramp and Soak Control

Ramp and Soak Controller Kit #2

For controlling a kiln using a Mechanical Relay or a Mercury Relay:

There are four items in this kit:

1. The Auber Syl-2372P, a 30 step Ramp and Soak Digital Controller Module
2. A 36" Type "K" thermocouple
3. T92S11A22-120AC Mechanical Relay
4. "How to Build Your Own Controller, Version 3.5.4"

This is a very versatile, easy to program controller, with a step by step manual to explain all the details. Plus we offer you great tech support: call Dudley- 603-456-3569
This is a $205.00 value at a modest savings:

$185.00

Wiring Diagram Ideas

- Bead Kiln on 120 VAC
- Medium sized Kiln on 240 VAC

Set Point Kit #1

For controlling a Kiln using a Solid State Relay

There are five items in this kit:

1. The Auber Syl-2352, a set point Digital Controller Module
2. 25 amp SSR (Solid State Relay)
3. Heat Sink with heat transfer paste
4. A 36" Type "K" thermocouple
5. "How to Build Your Own Controller, vers. 3.1"

This is a very versatile, easy to program controller (just set the temperature). We offer you great tech support: call Dudley- 603-456-3569
This is a $205.00 value at a $30.00 savings!

$175.00

Wiring Diagram Ideas for Solid State Relays

- Small Kiln or a "Bit Box"
- In Connection with a Mercury Relay

Set Point Kit #2

For controlling a Kiln using a Mechanical Relay

There are four components:

1. The Auber Syl-2372, a set point Digital Controller Module
2. T92S11A22-120AC Mechanical Relay
3. A 36" Type "K" thermocouple
4. "How to Build Your Own Controller, Version 3.5.2"

This is a very versatile, easy to program controller (just set the temperature). We offer you great tech support: call Dudley- 603-456-3569
This is a $198.00 value at a $23.00 savings!

$175.00

Wiring Diagram Ideas

- Bead Annealer

Here is a typical wiring diagram for using a ramp-n-soak. So there are a lot of different ways of modulating the power: SSRs, old fashioned contactors, Mercury relays, etc. Here is the SSR version: