

# **EHS INC.**

**Electric Heating Systems, Inc.  
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## **6-Way Mobile Transformer SD Controllers**

Standard Features Are:

73KVA Air Natural Transformer  
125 Amp 3 Phase Circuit Breaker  
A Shunt Trip Facility in Association with Over Temp. Winding Protection  
Primary 3-Phase Input Tapping options of 440/480/575v, 3ph, 60hz.  
Secondary Output Voltage 65 & 80 Volt  
110 Volt Fused Auxillary supply For Instrumentation, 1KVA  
6 Channel ContactORIZED Switching  
Individual Neon Indicators per Channel  
Watlow "SD" Temperature Controllers  
Size: 41" high x 33" deep x 24" wide  
6" Heavy Duty Casters  
4 Eye Hooks (one at each corner for lifting)

## *Power Console Parts*

(1) 73KVA Marelco Transformer	Part # 21200
(1) 125Amp Circuit Breaker	Part # 21235
(1) Shunt Trip for Main Breaker	Part # 21236
(6) Watlow "SD" Temperature Controllers	Part # 21225SD
(6) 110 Volt Neon Lights	Part # 21332
(3) Fuse Holders (5-Amp Fuses)	Part # 21333
(1) 0-200 Ammeter	Part # 21336
(6) CT Coils	Part # 21337
(12) 300Amp Female Panel Mounts	Part # 24502
(6) Single Female Type "K" T/C Jacks	Part # 21337
(6) Dual Female Type "K" T/C Jacks	Part # 25249
(6) SW200 Albright Contactors	Part # 21250
(1) 110 Volt Ground Fault Outlet	Part # 21332
(4) 6" Wheels	Part # 21238
(1) Replacement Frame	Part # 21256
(1) Left Side Panel	Part # 21370L
(1) Left Side Panel	Part # 21370R
(1) Front Panel	Part # 21374
(1) Rear Panel	Part # 21372
(1) Top	Part # 21371
(4) Eye Hooks	Part # 21380

Parts List Above for 2002-2003 Units

### **Read Carefully before operating**

- 1) Upon receipt of your new Power Console visually inspect it for any damage that might have occurred during shipment. If there are any signs of damage please call EHS Immediately so a damage claim can be processed.
- 2) The Power Console Weighs 960 Pounds. Be very careful when loading and unloading using a fork-lift.
- 3) Never operate the Power Console with the sides or the top removed. Serious electrical shock can occur if care is not taken.
- 4) Always use a Primary Cable of #4 AWG minimum. Do not use anything smaller in size. The cable must be 4-Wire and the Power Console must be grounded at all times during use.
- 5) Make sure the Primary Input Tapings have been placed on the correct locations for the voltage you will be using i.e. 440/480/550 Voltage.
- 6) Make sure the Secondary Tapings have been placed on the correct locations for the heaters you will using i.e. 65/80 Voltage.
- 7) If you should have any questions please call us 24 hours a day 7 days a week at our office # (609) 259-4116

### **Getting Started set up Procedure**

- 1) Make sure that all primary power connections are properly and tightly connected. Make sure that the unit is grounded and that the supply power is connected to the correct input tapings.
- 2) Connect the Triple Cable Sets to the output camlocks, and see that the corresponding thermal-couples are plugged into the proper T.C. jacks.

**NOTE !!** When attaching the thermal-couples to the workpiece or reattaching a broken thermal-couple, it is very important to temporarily disconnect the T.C. from the Jack on the Console and the Jack on the Recorder. The electrical spark of the TAU may travel through the T.C. wire and cause damage to the recorder or the controller.

- 3) Turn power on to the console.

Basic  
Navigation for  
using the  
Watlow 96  
Series  
Temperature  
Controller

The Watlow 96 series controller is extremely user friendly. Four basic keys are standard. The **up** and **down** arrow keys  $\Delta$   $\nabla$  change the display values (set point) and move through a list of settings in various menus. The **infinity** key  $\infty$   $\infty$  automatically returns the user to the “Home Page”. The **Advance** key  $\rightleftarrows$  advances the display through the various configuration choices. A picture description can be found on page 4.1 of the 96 series manual. There are two digital **Displays** and four **Output Indicator Lights** on the face of the controller. The **Upper Display** shows actual process values (the temperature of the work-piece). The **Lower Display** shows the **Set-Point** value during operation.

1. Using the up or down arrow keys, set the Set Point to the desired temperature, i.e. 600 deg. F.
2. Push the Advance key to go to the rp setting.

Push the up key to the ON position.

3. Push the Advance key to go to the Rate setting.
4. Set the Ramp Rate to the desired value, i.e. 400 Deg/Hr.
5. Push the Advance key once more to Auto. If the controller is in the Man setting (Manual) change this to Auto by pushing the up arrow key once.
6. Pushing the Advance key once more will bring you back to the Home Page.

The work piece will now Heat up to 600 deg.F at a rate of 400 deg/hour.  
These values may be changed at any time, whether before, after, or during a heat cycle.

**NOTE !!** The controller will begin to ramp to the set point and will be **Flashing** between rp and the set-point. If the controller is **not flashing** then it is **not ramping!**

7. After reaching 600 deg.F the Set Point can be changed to the required Soak Temperature,  
i.e. 1150 deg.F. A desired Ramp Rate may also be changed.
9. After completion of the allotted Soak Time, you can change the Set Point to the final temp and final Rate by using the up and down arrow keys as before.

On reaching temperature the controller will stop **flashing** between **rp** and the **temperature** of the workpiece. It should be noted that the 96 series controller has a list of possible **Alarm** settings that are displayed as errors (**ERR 4**). Generally, for our applications, the one that concerns us is error #4 that warns of an open circuit or broken thermo-couple input.