

# **EHS INC.**

**Electric Heating Systems, Inc.  
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## **6-Way RAMP Mobile Console**

Standard Features Are:

50/73/90 KVA 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  
Eurotherm "3216" Temperature Controllers  
Size: 41" high x 33" deep x 23" wide  
6" Heavy Duty Casters  
4 Eye Hooks (one at each corner for lifting)

### *Power Console Parts*

(1) 73KVA Marelco Transformer	Part # 21407
(1) 125Amp Circuit Breaker	Part # 21235
(1) Shunt Trip for Main Breaker	Part # 21236
(6) Eurotherm "3216" Ramp Controller	Part # 21427
(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 2004-2006 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 tappings.
- 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.

## OPERATING INSTRUCTIONS for the EUROTHERM 3216 RAMP to SET-POINT CONTROLLER

There are four keys on the face of the 3216 Controller.




The “” key returns the operator to the **HOME** display.

The “” key is used to select new parameters.

The  key and the  key increase or decrease a value.

There are **three modes of operation** that can be used with the 3216 controller.















- 1. Ramp to Set-Point:** The controller **ramps** to a set-point at a set **rate**. The controller is set to **Auto**, with the **Ramp “ON”**.
- 2. Straight to Set-Point:** The controller goes straight to the set point as quickly as possible when set to **Auto**, with the **Ramp “OFF”**.
- 3. Percentage Timer:** The controller turns on and off according to a set percentage when set to **Manual**, with the **Ramp “OFF”**.

The “” key moves from one option to another and the  and  keys are used to insert numbers for set point, ramp rate, or percentage values.



*Scrolling messages* appear on the bottom of the controller to give various status, set-up, or alarm information. For example; INPUT SENSOR BROKEN says that the Thermo-Couple is either broken or not plugged in.

## Ramp to Set-Point Mode











When the 3216 Ramp controller powers on in the **Ramp** mode the top of the display will be **flashing** between **rP** and the **input value**. The lower display value is the **ramping set-point** that shows the programmed set-point climbing at the programmed rate.

1. Press the advance key  to see  This is asking if you wish to **pause** the Ramp. Using the  arrow key  you can change this to **YES** . Now the controller will maintain the current set point without ramping up.
2. Press the advance key  to see   
 This says that the controller is in the Ramp mode.
3. Press the advance key  to see   
 and a scrolling message "**RAMP RATE**". This is asking for a value  to be chosen for the **Ramp Rate**.
4. Press the  or  arrow keys to change the "number value " to the desired **Ramp Rate**.
5. Press the advance key  to see  and a scrolling message "**TARGET SETPOINT**" This is asking for a  value to be chosen for the END-SET-POINT.
6. Press the  or  arrow keys to change the "number value " to the desired **set point**.
7. Press the advance key  to see   
 and a scrolling message "**LOOP MODE AUTO MANUAL OFF**".
8. Press the advance key  to return to the HOME screen. The controller will be flashing but we must change the **PAUSE** to **NO** to continue ramping. Press the advance key  to see  Press the  arrow key to change the YES to NO.
9. Press the  key to return to the HOME screen.

The controller will now start ramping from the input temperature to the target set-point (**ESP**), at the chosen **Ramp Rate**. The upper section of the display will begin **flashing** between the input value and "**Rp**". The lower section of the display will show the ramping set-point. **If the controller is not flashing, then it is not Ramping !!!**














Values for the Set point or the ramp rate may be changed any time throughout the heating process. The Ramp may also be put into "**pause**" ( similar to **hold** in the **Remote Mode**) by pressing the advance key  to see  and a scrolling message "**Ramp Pause**". Use the  key to change the  NO to YES.

## Straight to Set-Point Mode

1. Press the advance key  to see **No**. This is asking if you wish to **pause** the Ramp. Using the  arrow key **PAUSE** you can change this to **YES**. Now the controller will maintain the current set point without ramping up.
2. Press the advance key  to see **ON** and a scrolling message "**Ramp Enable**".  
**RP**
3. Press the  or  arrow keys to change the "ON" to "OFF".
4. Press the advance key  to see **32** and a scrolling message "**TARGET SETPOINT**".  
**ESP** This is asking for a value to be chosen for the SET-POINT.
5. Press the  or  arrow keys to change the "number value" to the desired **set point**.
6. Press the advance key  to see **AUTO** and a scrolling message "**LOOP MODE AUTO MANUAL OFF**".  
**A-M**
8. Press the advance key  to return to the home page. The upper value indicates the input temperature, and the lower value indicates the set-point.

The Op 2 light will show on the controller indicating that the controller is calling for heat, and will stay ON continuously until the input temperature reaches the set-point temperature. In this mode there is no ramping control and care must be taken to avoid over-shooting of the set-point.

## Percentage Timer Mode

1. Press the advance key  to see **rmt** and a scrolling message **“remote setpoint select”** **L-R** This indicates that the controller is in the **Remote** mode.
2. Press the  arrow key to change the **Remote** mode to **Local**. You will see **LoC** **L-R**
3. Press the advance key  to see **OFF** and a scrolling message **“Ramp Enable”**. **RP**
4. Press the advance key  to see **32** and a scrolling message **”TARGET SETPOINT “** **ESP** This is asking for a value to be chosen for the SET-POINT .
5. Press the  or  arrow keys to change the “number value “ to the desired **set point**.
6. Press the advance key  to see **AUTO** and a scrolling message **”LOOP MODE AUTO MANUAL OFF”**. **A-M**
5. Press the  or  arrow keys to change the “**AUTO**“ to **mAn**
6. Press the advance key  to see **1** and a scrolling message **”ADDRESS”** . **ADDR**
7. Press the advance key  to return to the home page. The upper value indicates the input temperature, and the lower value indicates the percentage of operation. The percentage may be changed at any time using the  or  arrow keys. For example; if the controller is set to 50% it will cycle on and off approximately every two seconds. If the controller is set to 75% it will cycle on for approximately six seconds and off for about two seconds.