OPERATING INSTRUCTIONS
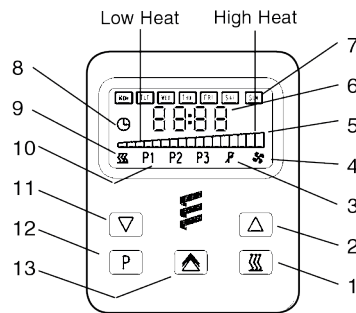## 701 10 Series Digital Modulator

KRUEGER LIMITED

Part Number: 701 10 007
For use with Eberspächer water heaters with dignostic readout display and battery backup

Low Heat   High Heat

1. Instant Heat ON/OFF key
2. Adjustment Up key
3. Disengaged pre-set symbol
4. Ventilation symbol
5. Temperature ramp. N/A
6. Current Time, Preset Time, Heating Time, Run Time and Diagnostics.
7. Day selected indicator boxes.
8. Clock symbol.
9. Heater operation symbol.
10. Preset Programme symbols.
11. Adjustment Down key.
12. Programme key.
13. Set/Programme key.

Please Note: The temperature ramp (Item 5) has no effect on heater operation or control of the vehicle blower for speed or temperature control.

INTRODUCTION

Your Timer/Modulator offers manual and programmable control. When the heater is switched on by the Timer/Modulator in a programmed mode it will run for 1 hour or for the duration time that you have selected e.g Heater on at 0700, duration time of 1 hour, which means heater will be switched off automatically at 0800.

CLOCK SETTINGS

Press and hold key until the symbol begins to flash. Use the and keys to set correct time. Press and release the key and the day box will begin to flash. Use the and keys to set the correct day. Press and release the key again to reset the clock to the start of the minute displayed. This may be used to coincide with a known time signal.

Please Note: These adjustments are not possible when the heater is in operation. To set the heater's programmable switch on timer, see "Setting Program Times".

SWITCHING ON THE HEATER (MANUALLY)

Press the key and the symbol will appear on the display. The heater will commence its startup cycle. The display will change to show a default of one hour heating countdown time. This can be extended in increments of 10 minutes, 30 minutes, 1 hour, 1 hour 30 minutes, 2 hours up to eight hours or to continuous running operation (shown as C-: -- on display) by repeatedly pressing the key while the heater is in operation. Current time will be displayed every 5 seconds.

SWITCHING OFF THE HEATER (MANUALLY)

The heater may be switched off at any time by pressing the key. The cooling down cycle will then be initiated.

DIAGNOSTIC READOUT (OPTIONAL)

With the heater switched on, press and hold the key until the display shows "dAtA". Release key and

display then shows "AF--" and alternatively displays the current fault code. Each press of the key will scroll through the last 5 previously stored fault codes.

TYPICAL FAULT CODES -

10 = Over voltage
Check battery charging system

11 = Under voltage
Check battery voltage

12 = Overheating

52 = Safety time exceeded
Check fuel supply

For other codes consult your local dealer.

Please Note: The temperature ramp (Item 5) has no effect on heater operation or control of the vehicle blower for speed or temperature control.

Press and keys together to erase stored faults and display shows "EEEE".

To exit diagnostic mode, press and release the 〰 key. If stored faults cannot be erased consult your local dealer.

HEATER RUN TIME

Press and hold the △ key until the display shows the heater run time in hours.

SETTING PROGRAMME TIMES

Press the ⋀ key and the P1 symbol will begin to flash. Pressing the P key will alternate the display between a preset time display and "OFF". With P1 flashing in the time display mode the desired programme time can be set using the △ and ▽ keys.

Once the desired time has been selected and if no keys are depressed for 8 seconds the display will revert to the clock mode. During this 8 second period pressing the ⋀ key will select P2 which can be used to select another programme time or be set to "OFF" if not required.

A further pressing of the ⋀ key will select the P3 symbol which can be set or turned off in the same manner as above.

SETTING PROGRAMME DAYS

Having set programme times P1, P2 or P3 or all three, press the ⋀ key, all the 'P' symbols that have been selected will start flashing and a box will appear around one of the days. Press the P key to select "ON" if you require the selected day to be programmed, or "OFF" if you do not wish it to be selected.

To move onto the following day press the ⋀ key once again and select "ON" or "OFF" as before. Repeat this procedure for all seven days. To store these settings in the Timer / Modulator memory, wait for 8 seconds and the display will revert to the clock mode.

SETTING PROGRAMME DURATION

To set the desired heater duration, press and hold the P key and whilst holding repeatedly press the ⋀ key to select the desired time in increments of 10 minutes, 30 minutes, 1 hour, 1 hour 30 minutes, 2 hours up until 8 hours.

Please Note: Continuous operation is not selectable in this programme mode.

Once stored the preset duration time cannot be adjusted during heater "ON" operation.

SWITCHING ON THE HEATER (PROGRAMMED)

To activate your selected program settings, press the P key to show the P1,P2,P3 (to determine when the heater will switch on) or symbol P̸ to turn off all settings.

Please Note: If all presets and days have been selected to "OFF" pressing the P key will have no effect.

When the heater has been switched on manually, it is possible to view which of the programmed times have been set and whether or not they have been activated. Press the P key to view and if any programmed time has been activated, its corresponding P will flash. If no programmed times have been activated then P̸ flashes. Press the P key to activate or de-activate the programmed times as required. Wait 8 seconds and the display will revert to manual operation countdown.