

 English (EN)

Product: PTC160 6 Way Temperature Programmer

Product Code: GHT 3001

## DESCRIPTION

The PTC160 programmer is easy to use, robust in its steel case and portable, with a carry handle fitted to the top of the unit.

## FEATURES

- Microcontroller based for accuracy, reliability and compactness
- Digital indication of set points and time
- 6 controllers, thermocouple inputs electrically isolated
- Digital 6 channel actual temperature display
- Ramp hold feature
- Temperature 'up' and 'down' rate settings
- Battery backup for mains failure
- Rear connectors for thermocouple and contactors
- Control lead with 7 pin bulgin multi socket
- Panel mount version available (GHT 3001PM) and stainless steel case version (GHT 3001SS)



## TECHNICAL DETAILS

Temperature settings:	0-1200°C in 1°C intervals
Rate of rise/fall setting:	1-999°C in 1°C intervals
Time setting:	0-100 hours in 1 min steps
Thermocouple:	NiCr/NiAl, Type K
Mains Supply:	230V/115V, 50/60Hz
Dimensions:	270mm x 150mm x 425mm
Weight:	9.15kg
Unit of Sale:	Each

## OPERATING INSTRUCTIONS

### Setting Up Procedure

At switch on the left hand display should show 'PUSH SET' If it does not, the programmer must have been switched off while a programme was running. In this case push the reset button twice.

### Start Temperature

Push the set button, the start LED will come on and the setpoint display will show the previously entered value for the start temperature. If this is the required value, push the enter button.

If a different value is required, push the set button again. The display now follows the setting of the push switches.

Note that the thousands digit will only display 0 or 1.

When the required value is shown push enter. The display will now flash on and off and if it is necessary pushing set will return to the display following the push switches.

Pushing enter a second time switches off the start LED and switches on the rate 1 LED.

#### *Rate 1*

With the rate 1 LED on, the same procedure is used to enter rate 1 as described above for the start temperature. Note that the thousands digit is blank and only the lower 3 digits are valid.

#### *Soak Temperature*

When the soak LED is on, use the same procedure as described for the start temperature. Note that the thousands digit will only display 0 or 1.

#### *Soak Time*

When the time LED is on, the previously entered value for the soak time is shown flashing on and off. The same procedure using the set and enter buttons is used as before. Note that the tens of minutes digit cannot be set greater than 5.

#### *Rate 2*

Follow the same procedure as Rate 1.

#### *Off temperature*

Follow the same procedure as for Start temperature.

#### *Programme Operation*

When the off temperature has been entered the display will now read 'PUSH run' and when the run button is pushed, the rate 1 LED on the graph will come on the setpoint display will show the value that was entered for the start temperature. The temperature display will show the temperature of the selected channel.

If any of the 6 channels are below the setpoint by more than the value of the HOLD setting (see DIP switch settings) the display will flash between the setpoint value and 'HELD'.

The hold LEDs on the right hand side of the panel will show which channels are causing the programme to be held.

When all the channels have increased in temperature enough to switch off all the hold LEDs the setpoint display stops flashing and starts to ramp to the soak temperature at the value set in rate 1.

If the hold button is pushed the ramp will stop and the setpoint display will flash between the setpoint and 'hold'.

Pushing the hold button again allows the ramp to continue.

When the soak temperature is reached the soak LED comes on, both the setpoint and time display come on, with the time display showing the elapsed time. When the elapsed time reaches the soak time setting, the time display goes off the soak LED goes off.

Rate 2 LED now comes on and the setpoint ramps down to the off temperature. When this is reached the display now shows 'Prog End'. Pushing the set button returns the display to show 'PUSH SET'.

When no changes are needed to be made to the set programme all that is necessary is to push the set button followed by enter for each of the programme settings.

## *Checking the programme settings*

When a programme is running all the settings can be checked by pushing the check button. After the first push the start LED comes on with the setpoint display showing the start temperature and both flash on and off five times. The display then reverts to normal.

If the check button is pushed before the 5 flashes have been done, the next setting will be displayed in the same way. Further use of the check button can be used to read all the programme settings.

## *Changing the settings during programme operation*

With the exception of the start temperature any of the programme settings can be changed while the programme is

running. Push the check button until the setting that is to be changed is flashing and then push the alter button. The

display will continue flashing showing the set value and the alter LED will come on to show that it is in alter mode. The set and enter buttons are then used to enter the new value from the push switches in exactly the same way as described in programme entry.

## *Temperature Indication and Control*

The temperature of any one of the 6 channels can be displayed. Selection of the required channel is made using the channel pushbutton. LEDS mounted either side of this pushbutton show both power output and hold condition.

Temperature control is fully digital and is time proportional plus integral. The proportional band can be changed (see DIP switch settings) and is common for all 6 channels.

## *Calibration*

Calibration is achieved using a thermocouple simulator and checking using the span and zero pots at say 100°C and 1200°C.