

**Description:**

This device interfaces directly with a 3-wire PT100 and offers a 0.1 °C display resolution, adjustable offset, hysteresis and max and min pre-set temperature settings. It can be configured for heating or cooling applications.

The temperature is converted to a 4 - 20mA signal. This signal may be programmed to represent the full scale, or part thereof. By default a temperature of 0°C generate an output of 4mA, and a temperature of 440°C will give 20mA.

The menu can be reduced and the parameters locked with an access code to protect programmed values.

(see menu configuration).

**Operation:**

The relay remains energised until the probe temperature reaches the pre-set temperature whereupon the relay de-energises until the temperature changes by the hysteresis amount.

The temperature is re-transmitted based on the re-transmit offset and span parameters. The output may be set to correspond to the entire temperature range or any part thereof.

eg. A range of 0-100°C may be re-transmitted as  
(4mA=0 °C, 20mA=100°C re-tx offset=0.0, span=100.0),  
or 50 - 70 °C may be re-transmitted as  
(4mA=50 °C, 20mA=70 °C. re-tx offset=50.0, span=20.0).

**Menu functionality:**

All adjustments are made via the three front mounted buttons. Press the "MENU" button repeatedly until the desired setting is reached, press "SELECT" to display the current value of the selected setting. The "+" and "-" buttons are used to change the value. "ENTER" will return the device to the menu. The "BACK" button will exit the menu.

**Adjustable parameters:**

- Pre-set temperature "°C" (default value: 25.0)  
When the probe temperature reaches this value, the relay is de-energised.
- Hysteresis "HySt" (default value: 1.0, range 1-100.0 °C )  
Once the pre-set temperature has been reached, it must change by this amount before the relay is re-energised.
- Offset "OFSt" (default value: 0, range -10.0 to +10.0 °C)  
This value is added (or subtracted if negative) to the current temperature.
- Maximum "Hi" user setting (default value: 440.0)  
This is the maximum value obtainable via setting number 1 ("°C").
- Minimum "LO" user setting (default value: -50.0)  
This is the minimum value obtainable via setting number 1 ("°C").
- Element type "TYPE" (default: Heating)  
The device may be configured for heating or cooling.
- Re - transmit output Offset "rt.OS" (default : 0.0, range -60.0 to +450.0 °C)  
When the temperature equals this value, 4mA is transmitted.
- Re - transmit output Span "rt.SP" (default : 440.0, range -60.0 to +450.0 °C)  
When the temperature equals this value PLUS the offset (rt.OS) value ("rt.SP'+rt.OS"), 20mA is transmitted. (see notes)
- Reset "RESt"  
By selecting this setting, the device is reset to the factory defaults

**Menu operation example: Set the setpoint to 30.0°C:**

Press "MENU" to display "°C". Press "SELECT" to view the current value. Use the "+" and "-" buttons to change the value to 30.0. Press "ENTER" to return to the menu. Press "BACK" to exit the menu.

## Notes:

- The output 4-20mA is dependant on the temperature being displayed. The offset parameter specifies when 4mA is output, and the span is the increase in temperature required for the output to increase by an additional 16mA ie. 20mA is output when the temperature = re-transmit OFFSET (rt.OS)+ re-transmit SPAN (rt.SP)
- If the temperature being read is outside the device's temperature range, the message "t Lo" or "t Hi" is displayed.
- Make all adjustments and reset device before connecting relay.
- Probe lead resistance could affect the accuracy as much as 0.3 °C / ohm
- If the probe is faulty, or not connected, "P.Err" is displayed.
- If the input voltage is below the minimum operating voltage, the relay may not energize. Even though the device's display is on.

## Menu Configuration

When not in the menu, press and hold "+" and "-". After 3 seconds the display will toggle through the **available** options:

"loc" = available parameters may be viewed, but not changed.

"u.loc" = available parameters may be changed.

"rEdu" = remove advanced parameters from menu.

"Full" = all parameters are available.

"CodE: = Enter a code between 1 & 9999.

To set an option, release the buttons while the option is being displayed. To enter a code, release the buttons while "CodE" is displayed, then use "+" & "-" to enter a value. To skip code entry, press "Enter" while "CodE" is displayed.

Once the code is entered, the first four options are not available until the correct code is re-entered. To clear the code ( in case it is forgotten), hold the "+" & "-" buttons while the device powers up.

## Specifications:

Temperature range:	-50.0 °C to + 440.0 °C
Temp. Accuracy:	±0.5 °C @ 25 °C ambient
Re-transmit Accuracy :	±0.3% @ 25°C (% of full scale)
Input voltage:	±15% of rated input
Probe:	PT100 (38.5 ohm/ 100 °C)

## 12 Month guarantee:

Our product is guaranteed for a 12 (twelve) month period from date of purchase. This guarantee is valid for defects arising from failure during specified conditions. This guarantee does not cover damage due to abuse, tampering or improper installation. Our company does not accept liability for any consequential damage or loss arising from product malfunction. Should this product prove to be defective, kindly return it for inspection or repair. For further information contact your nearest distributor.

## Relay specifications:

Contact rating:	10A250 VAC 2500VA (Resistive)
Mechanical life:	30 million operations
Electrical life:	250 000 operations (at maximum load)

## P49-HTC0/1/2 Temperature controller (pt100) [www.iconelectronics.co.za](http://www.iconelectronics.co.za)

