

# Precise Hot Water Treatment system and procedures

- 1) A digital thermostat that operates in an electrical amperage that will be within a range of the small hot water heater shown after this device. This thermostat is the one we use and can be purchased online at Dwyer Instruments for \$68.00 (this device is guaranteed to vary by only 1 degree F):

[http://www.dwyer-inst.com/Products/Product.cfm?Group\\_ID=402](http://www.dwyer-inst.com/Products/Product.cfm?Group_ID=402)



The header of the Dwyer Instruments website features the company logo on the left, followed by navigation links for 'Cart', 'Quick Order', and 'Log In/Register'. A 'Digital Catalog' link is accompanied by three small national flags. Below these is a red banner with the text 'TOTAL INSTRUMENT SOLUTION' and the phone number '800/872-9141 • 219/879-8000'. At the bottom of the header is a search bar with the label 'SEARCH' and a dropdown menu for 'Model Number', followed by a row of navigation buttons: 'Products', 'Catalog', 'News', 'About Us', 'Contact Us', 'New Products', and 'Home'.



**Series TS**  
**Digital Temperature Switch**  
*3-Digit Display, Heating/Cooling Control, 8 or 16 Amp Relay*



**Product  
Details**

## Product Introduction

The TS Digital Temperature Switch is designed to regulate many heating and cooling applications. Easy programming via the tactile front keypad enables quick setup of the 12 parameters for simple, reliable operation. The user can define set point, heating/cooling regulation, hysteresis, cycle time, ambient probe adjustment and defrosting time. The unit features error or alarm messaging and password protection. View probe temperature on the bright red, 3-digit LED display. Select between temperature display in °F or °C, and 110 VAC, 230 VAC, or 12 VDC power supplies. The Series TS includes a thermistor with 5 ft (1.5 m) cable, fitting clips for panel mounting, gasket, rear terminal cover, and instruction manual.

To be sure the electrical systems between the hot water heater and the thermostat (above) are compatible, be sure they are within the same Amp range. The thermostat above operates with either an 8 or 16 amp range. ( You'll want to use a ground fault

circuit interrupter to protect against accidental shock, see the last note in this document for an example )

- 2) An example of a small hot water heater tank is below. This brand and model is a "Whirlpool" E1F6US017V tank heater. This Heater holds a 6 gallon capacity and operates at 13.75 amps which will work well with the thermostat above and keep the water temperature well within the desired range. This model can be purchased at Lowes for \$238.00



**Whirlpool  
6-Gallon Electric Water Heater**

Item #: 140462    Model: E1F6US017V 120V

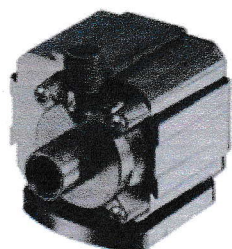
**\$238.00** ★

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- 3) You'll also need a submersible water pump to keep the water flowing and the entire capacity of water at the same temperature. We use a Pond Master Mag Drive pump, model PM5. Here's a piece of website information:

<http://www.123ponds.com/pm02525.html> this item costs \$68.00 on this website.

**PM5 - 500 GPH Submersible Pump - 18ft Grounded Power Cord**



[click to zoom](#)

Item #:	02525
Suggested Retail:	\$109.60
Our Price: Only	<b>\$68.00</b> <i>You save: 38%</i>
Availability:	Usually ships the same business day <a href="#">Estimated Delivery Date</a>
Order Quantity:	<input type="text" value="1"/>
<a href="#">ADD TO CART</a>	

- 4) Even though the thermostat has a temperature probe attached to it, you might want to acquire a separate temperature probe to verify the temperature in an area of the treatment tank that would be furthest away from the water pouring from the heater hose. You can get a basic "probe" type of thermometer that will do this nicely. I found one at Amazon.com as below:





### Polder Original Cooking All in One Timer/Thermometer

Other [Polder](#) products

★★★★★ (109 customer reviews)

List Price: \$25.00

Price: **\$21.49** & eligible for **FREE Super Saver Shipping** on orders over \$25.

You Save: **\$3.51 (14%)**

[Special Offers Available](#)

#### In Stock.

Ships from and sold by [Amazon.com](#). Gift-wrap available.

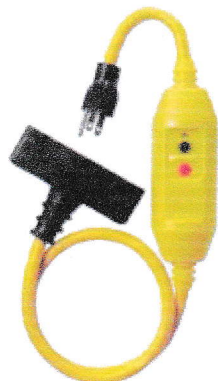
Want it delivered Monday, July 27? Order it in the next 0 hours and 40 minutes, and choos

[5 new](#) from \$19.99 [1 used](#) from \$15.50

You can purchase any number of these in any kitchen store or larger store around your town.

- 5) One last suggestion is to use a Ground Fault Circuit Interrupter (GFCI) which is nothing more than a portable circuit breaker. You can find these in any of the larger hardware stores at a minimal cost. Here's an example with 3 outlets that we found at Lowes, but they seem to have dropped this item from their website at the moment:

#### Inline GFCI and Triple Tap 3-Ft. Cord



NEMA 5-15P and (3) 5-15 R

12/3 AWG SJTW Cord

MODEL #30338024

UL, CUL 125V/15A

Qty:

This will plug into your wall outlet and all the above equipment can then be plugged into this device for protection against electrical shock through the treatment process.

My first experience in this process was in the summer of 2007 when I used a 30 gallon aquarium with the above equipment. I put the bulbs in the tank just after starting up the heater system. I added 10 percent Chlorine Bleach as an added measure of security.

(This was suggested by a program on Pests & Diseases at the ADS Convention in Tacoma Washington given by Gary Chastagner). It was also suggested that 3 hours @ 113 degrees would suffice in successful treatment for Nematode infection. The bulbs were added and weighted down with bamboo garden steaks held with glad mugs. I started the process with room temperature water because it was suggested that a soak @ 85 degrees would cause nematodes to come out of dormancy and I knew that it would take a couple of hours to get above 100 degrees. This did work and after 2 & ½ hours, the temperature went to 110. It took a while longer to get to 111 but didn't seem to get much higher. The temp. bounced up to 112 for a second or so, but dropped back

to 111. This continued for the entire process, so I extended the highest temperature treatment to 5 hours.

The following spring, the evidence of HWT was apparent with small spots on the tips of the leaves that look like dishwater spots. This was the verification method suggested by Brian Duncan.

If anyone has any questions, please feel free to contact me.

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