Cool Mountain Streams Are Nice If I Do Not Have To Shower In Them

In August of 2012 I installed a Chilipepper CP6000 DHW on demand recirculation system. The goal was to save on water that would end up in the septic system and to lessen the use of the well pump to replace that water. After priming the pump, I tried it out and it worked as I wished with the exception of the very noisy pump motor.

The water to this new room passes by the kitchen sink and it is helpful to run the recirculation system before the dishwasher is used. With this in mind I purchase an RF remote to trigger the system from the kitchen and the original bathroom location.

All works as planned until January of 2016. The Chilipepper pump occasionally will start and stop immediately without continuing till hot water reaches the pump. I notice that if I power it off and on it will work. I also tried turning the sensor setting knob and it seems to correct the issue. Then it will be fine for a few days and act up again. This kind of defeats the RF remote purpose.

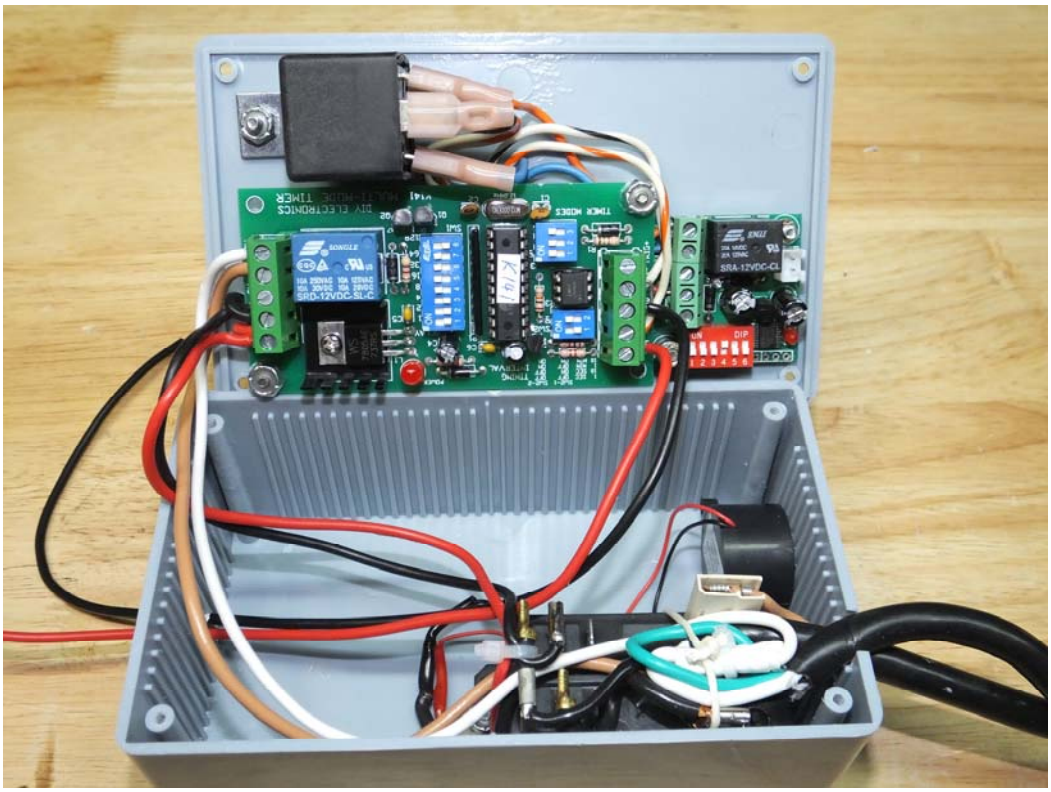
At this point I have had the Chilipepper for four years and I am not seeing much of a future with this system. I spent a few days researching a new system to replace the current one. The cost of these systems varies widely and nothing I read convinces me I should buy a particular system. After a few days of pondering this issue I decide maybe I can build my own system.

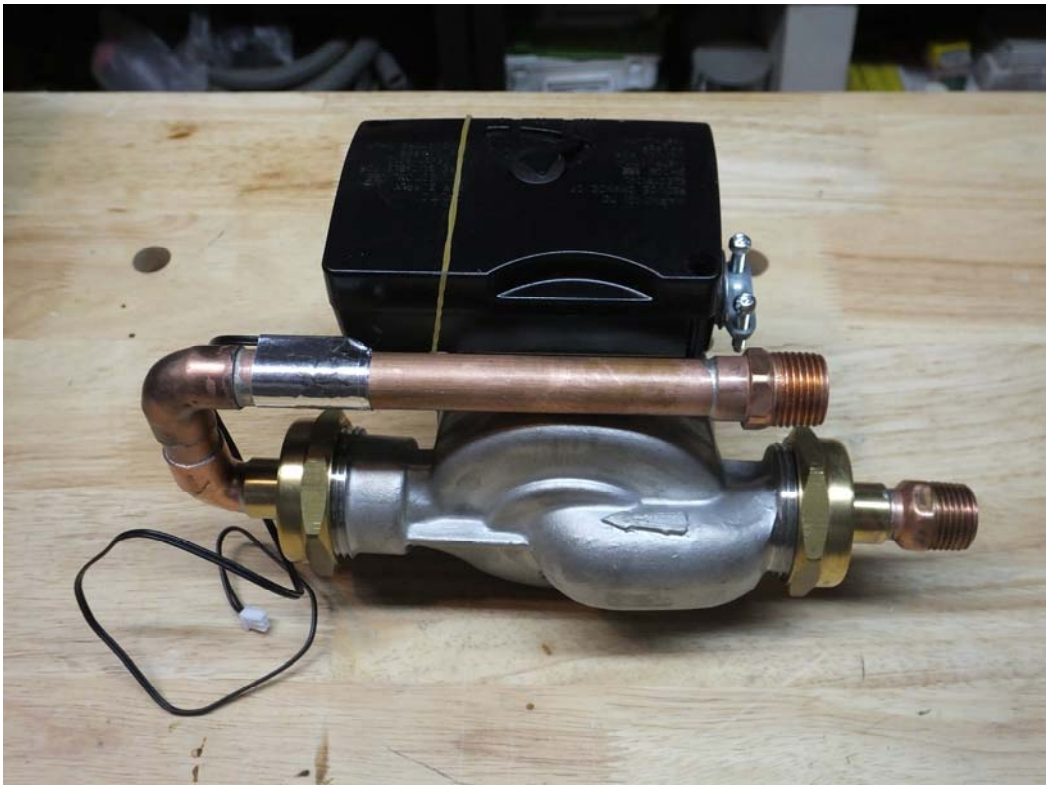
First I find an Armstrong Astro 225SSU pump that looks like it will do the job for $134 and free shipping. Little did I know I should have bought the flange fittings as I find they are $30 in most places. I was looking for a source and one site had the Grundfos fittings #529913 on half price with local pickup. With the pump and flange fittings I can do the plumbing assembly to make the pump accept 1/2" FNPT braided hoses that are currently used. I fashioned a cradle of pressure treated wood to hold the pump inside the box that contains the current system so it will keep the shaft horizontal with the control box on top.

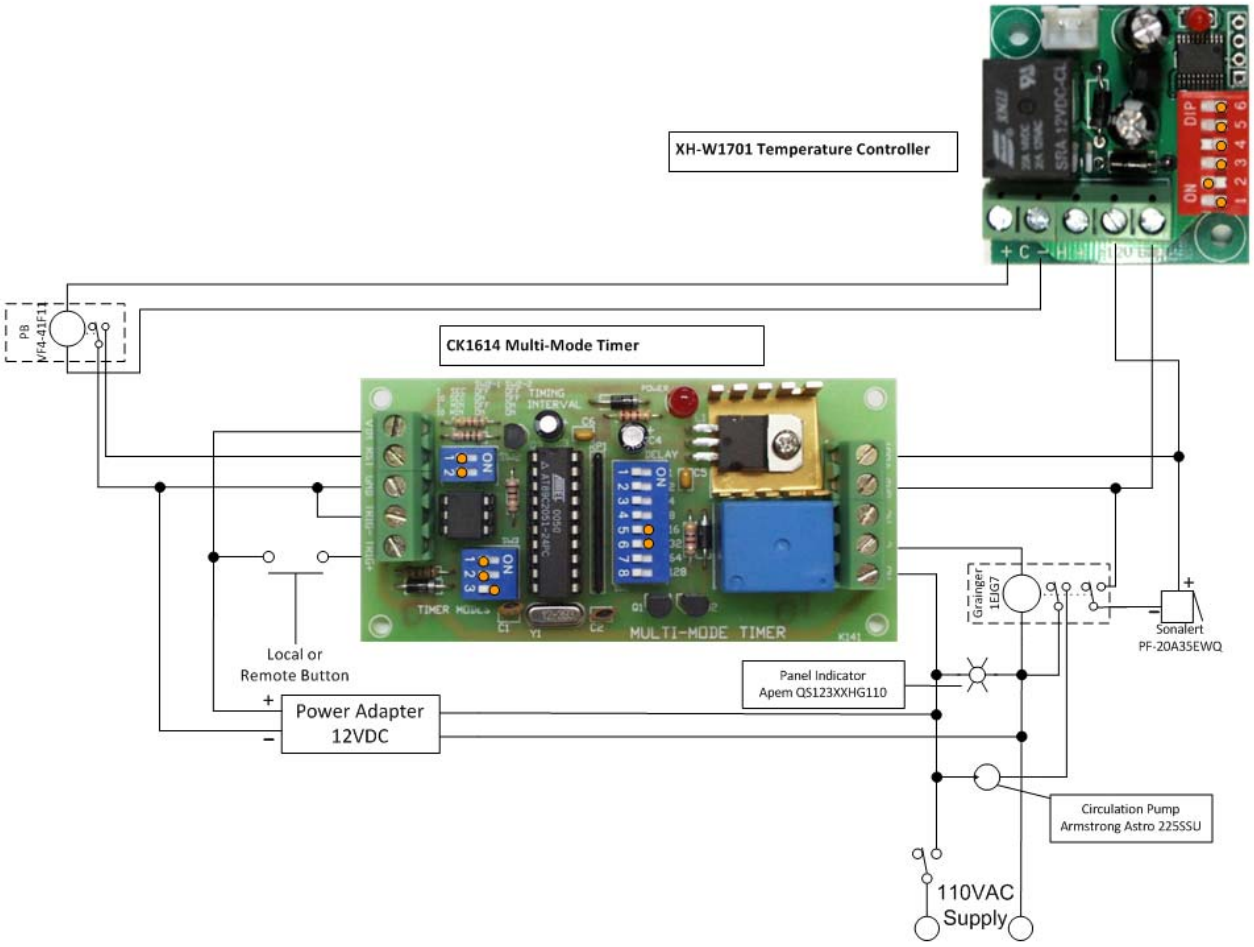
Next I need to build the control circuit that will run this system. I want the pump to run until hot water has reached it and if it never arrives for some reason I want it to stop. On hand from a past project I have a CK1614 Multi-Mode timer circuit that sells for $26. It uses 12VDC as does the RF remote so that is good. Using *Mode 4 - Instant On and Hold, Delayed Off, the trigger signal operates the relay but does not start the timing cycle. The relays remains operated while the trigger signal is present. Loss of trigger signal starts timing cycle. Relay releases at end of delay time.* The trigger signal will come from the local push button or the RF remote. Now I can get the pump running and have it stop after a given time.

I turn to Google to find a temperature sensor circuit. To my surprise I can get a XH-W1701 Temperature Controller for under $7 that has a remote wired sensor and runs on 12VDC. This arrives in a few weeks and I add it to the timer circuit with a 12VDC isolation relay. The sensor probe is taped to the copper on the pump with some conductive grease added to help. At first I built the circuit with the timer and sensor in series but, that was not the solution I liked. At this point I see a note I had missed for all timing modes: *For each of the timer modes a reset signal will stop the timing cycle immediately and reset the timer, ready for another trigger signal.* The timer is started by the remote or local button, runs until it times out or the temperature has been reached and the temperature sensor relay operates which resets the timer.

This is all fitted into a project box with a Sonalert PF-20A35EWQ to tell me when the pump is running. The bottom line; for under $200 I can get the system I wanted with a pump that is much quieter than the Chilipepper and the electronics that are replaceable as needed.


SRD-12VDC-SL-C
SRA-12VDC-CL




XH-W1701 Temperature Controller
CK1614 Multi-Mode Timer
MULTI-MODE TIMER
Local or
Remote Button
Power Adapter
12VDC
Panel Indicator
Apem QS123XXHG110
Grainger
15J57
Sonalert
PF-20A35EWQ
Circulation Pump
Armstrong Astro 225SSU
110VAC
Supply


Caution: 110VAC & 12VDC Present