# *PCS3 Installation Survey*

## Purpose

This **IN SEASON** survey asks you to do the following: 1. Check and test some of your system's features; 2. Describe the system's operating environment by answering some questions; and, 3. Collect a small amount of operating temperature data. When you are done, you can fax the document to SolarAttic or return the completed survey by regular mail to SolarAttic. All contact information is on the last page. We will review the survey for any obvious installation or operational problems from the factory's perspective. There is no charge for this support service, and you will be informed of the results of our review in writing via email.

Our goal is to achieve a high degree of customer satisfaction. Since we know little about the environment in which your PCS3 has been installed, this survey will provide the technical details we need in order to evaluate the performance of your system. We appreciate your willingness to work with us to enhance the performance of your PCS3.

## Physical Installation

Even though our manufacturing records may indicate the exact equipment SolarAttic shipped to you, please Visually Check & Verify which ancillary equipment is actually installed. *Note: Check box if the equipment is physically installed as part of your PCS3 System. See page 2 for basic support equipment photo references.*

❑ **GL235** Solar **Controller** from Goldline

❑ **A different Solar Controller**: Please specify brand/model _____

❑ Check if this is a programmable solar control.

❑ 3 Port T-Valve - **Bypass Valve** from Goldline or other manufacturer _____

❑ 24VAC **Valve Operator** from Goldline or other manufacturer _____

❑ 4 Port X Valve - Grey **Flowreversal Valve** from MarkUrban [FR valve]

❑ 3 Port T Valve - Grey **Proportioner Valve** from MarkUrban [used with FR valve]

# Ancillary Equipment Photo Reference


**Goldline GL-235 Solar Controller**

**Goldline or Standard T-Valve**
**Top View of Bypass T-Valve**

**Goldline or Standard 24vac Valve**
**Operator Mounted on Bypass Valve**

**Mark Urban**
**4-Port Flowreversal**
**X–Valve (Top View)**

**Mark Urban**
**3-Port Proportioner**
**T–Valve (Top View)**

## General Questions

1. What is the date the system installation was completed? _____
2. What is the date the system was placed into operation? _____
3. Who installed this system?

Name: _____

Company Name: _____

Address: _____

City/State/Zip: _____

Phone: _____

Email: _____

4. Who filled out this survey and performed the system's operational tests?

Name: _____

Phone: _____

Email: _____

5. What is the date this survey was completed? _____
6. What months of the year is your pool closed? _____

## Operational Questions

*Note: Please **physically check and verify** the following information or perform the following operational tests in the exact sequence given below.*

1. Is the bypass valve installed to the output of the pool's filter? **Y / N** *(circle one)*

2. The black 24-vac valve operator that physically sits on top of the bypass valve has a switch that determines the rotational direction from the solar controller. The switch is labeled ON1 / OFF / ON2. Which position is this switch in? **ON1 / OFF / ON2** *(circle one)*

3. Open up the front panel of the solar controller and indicate the current setting of the operating MODE switch of the GL235. **AUTO / MAN / OFF** *(circle one)*

*Notes: (A) If the controller is not in the AUTO mode, you cannot obtain maximum heating for your pool. (B) If you do not have a solar controller connected to the PCS3, this is a severe limitation on the ability of the system to maximize the heating of your pool. We suggest that the system then be turned manually on from 11 a.m. until 7 p.m. on sunny days or when there is obvious heat in the attic. If the PCS3 is turned on manually when there is no heat available, it will cool the pool instead of heating it. That is why SolarAttic recommends the AUTO System.*

4. When the solar controller is turned ON manually, which way does the bypass valve rotate? **Clockwise / Counterclockwise** *(circle one)*

*Note: If the valve was installed per instructions, the valve will rotate counterclockwise and the handle of the valve operator will indicate that the left port [as viewed from the top of the valve] is OFF. If the valve is reversed staged [left & right ports reversed], the ON1 / OFF / ON2 on setting for proper rotation will be opposite.*

5. Does the right port of the bypass valve [as viewed from the top of the valve] go directly to the PCS3's input? **Y / N** *(circle one)*

6. Verify that this pipe going between the bypass valve and to the PCS3's input does **not** have a check valve. *Note: the other pipe coming down from the attic is the return line from the PCS3. This return line should have a check valve.* Does the return line have a check valve installed in it? **Y / N** *(circle one)*

7. The check valve has arrows [associated with either a horizontal or vertical installation of the valve] indicating the proper direction of water flow through the valve. Does the check valve's correct installation arrow point away from the attic and towards the pool? **Y / N** *(circle one)*

8. With the solar controller turned ON manually, does the pool's pump turn on? **Y / N** *(circle one)*

*Note: The pump should turn on automatically. If it does not, this is a serious limitation of the system's ability to maximize the heating of your pool. If the pump operates from a timer, the timer must span the entire length of solar collection time to maximize the heating of the pool. This should be set to run from 9 a.m. until 9 p.m. typically and can vary somewhat depending upon local conditions.*

9. If the pump is operated from a timer, what time is the timer set for starting and stopping?

**The pump timer STARTS at _____ a.m. and STOPS at _____ p.m.**

10. If the pump is operated from a timer, verify that the timer reads the correct time of the day. Is the timer set to the correct time of the day? **Y / N** *(circle one)*

*Note: the timer can become mis-synchronized with the PCS3 every time that the power company loses the power to your home or facility and should be checked on a periodic basis to ensure that it is still reading the correct time of the day.*

11. If the pump is operated from a timer and the timer was reading an incorrect time of the day:
What time of the day was the timer reading? _____ a.m. / p.m. *(Circle one)*
What was the correct time of the day? _____ a.m. / p.m.

***Note**: The pump needs to be ON for some of the following tests. This will require you to turn the timer ON manually if the solar controller doesn't turn the pump on.*

12. With the solar controller turned ON manually [pump is on], does water flow through the pipe going to the PCS3's inlet? Y / N *(circle one)*

*Note: Place your ear up to the pipe and listen for water flow.*

13. With the solar controller turned ON manually [pump is on], does water flow through the pipe coming from the PCS3's outlet [return line]? Y / N *(circle one)*

*Note: Place your ear up to the pipe and listen for water flow near the check valve. If the check valve was incorrectly installed, it would prevent water from flowing through the PCS3. It would also result in abnormally high pressure at your filter.*

14. With the solar controller turned ON manually, does the PCS3's blower turn on? Verify this inside the attic by observing airflow. Y / N *(circle one)*

*If Yes, does the air discharge from the PCS3 seem cold? Or warm like rest of attic? (Circle one)*

15. With the solar controller turned OFF manually, does the PCS3's blower turn off? Verify this inside the attic by observing no airflow. Y / N *(circle one)*

16. With the solar controller turned ON manually, does the SOLAR ON light on the front of the controller turn on? Y / N *(circle one)*

17. Is the thermostat on the solar controller currently set to the maximum? **Y / N** *(circle one)*
If the thermostat was not set to maximum, where was the thermostat set? _____ Degrees F.

18. With the solar controller turned to AUTO and the temperature thermostat on the controller set to <u>maximum</u>, does the SOLAR ON light on the front of the controller light up? **Y / N** *(circle one)*

Is the PCS3 fan ON at this time? **Y / N** *(circle one)*

19. With the solar controller turned to AUTO and the temperature thermostat on the controller set to <u>minimum</u>, does the SOLAR ON light on the front of the controller turn OFF? **Y / N** *(circle one)*

*Note: You can now set the controller to AUTO with the thermostat at maximum.*

20. <u>If you have a GL235</u>, is the Check Sensor light OFF? **Y / N** *(circle one)*

*Note: If the CHECK SENSOR light is on steady or flashing, it indicates a problem with a temperature sensor and the proper operation of your system will not be possible. Refer to the troubleshooting guide in the PCS3 technical manual, the GL235 Manual, or contact the factory.*

21. Have you used at least two different pool thermometers in determining the effectiveness of the PCS3? **Y / N** *(circle one)*

*Note: Drop in the pool thermometers are usually of a poor grade in terms of reading an accurate temperature. In one instance, the PCS3 was reported as not working when the problem turned out to be an ineffective thermometer in the pool. When a new one was used, the pool was reading 7-10 degrees warmer and the daily temperature gains then became easily discernable.*

22. What is the horsepower of your pool's pump? _____ **HP**

23. Does your pool have an automatic vacuum cleaner installed? **Y / N** *(circle one)* If so, what type does it have? Describe: _____

_____

24. If you have an automatic cleaner, does it use a separate booster pump? **Y / N** *(circle one)*

25. Have you noticed any problems with the pump's vacuum suction during the times when you are vacuuming the pool? **Y / N** *(circle one)*

26. Have you noticed any problems with filtration in the pool or with the pool's cleanliness? **Y / N** *(circle one)*

*Note: If you responded yes to either this or the prior question, it could indicate an inadequate flow rate of water from the pump and the pump may have to be replaced or upgraded for proper water flow.*

27. If you know the water flow rate, or you have a flow rate gauge, what is the flow rate of water through the PCS3? **Flow rate** _____ **GPM** *(gallons per minute)*.

Do you have a flow meter gauge installed? **Y / N** *(circle one)*

28. Have you noticed any excessive water loss in your pool? **Y / N** *(circle one)*

29. Do you have any known leaks in your pool's plumbing? **Y / N** *(circle one)*

## Environmental Questions

1. Describe the shape & style of your swimming pool: _____

2. Is your pool **Inground / Partial Inground / Aboveground**? *(Circle one)*

3. Is your pool **Vinyl / Concrete / Fiberglass**? *(Circle one)* Other _____

4. What is the estimated pool's surface area in square feet? _____ **Square feet**

   **OR Estimated** Length is _____ Width is _____ Diameter is _____

5. What is the maximum depth of your pool? _____ **Ft** Average depth? _____ **Ft**

6. What are the estimated gallons that your pool holds? _____ **Gallons**

7. Is the pool **Sunny or Shaded**? *(Circle one)*

8. Is the roof on the structure where the PCS3 is located **Sunny or Shaded**? *(Circle one)*

9. Does your roof have any wind turbines that are operational? **Y / N** *(circle one)*

*Note: This question and similar ones pertain only to the roof over the attic that houses the PCS3.*

10. Does your roof have any power vents that are operational? **Y / N** *(circle one)*

11. What color is the roof on the structure where the PCS3 is? _____

12. Describe the type of roof over the PCS3 [Wood shakes, Concrete tiles, Asphalt shingles, etc.

_____

13. How old is the roof? _____ **Years**

14. Is there more than one layer of asphalt shingles? **Y / N** *(circle one)* _____ **Layers**

15. What is the condition of your roof: **Excellent / Good / Fair / Poor** *(circle one)*

16. What is the size of the attic floor area where the PCS3 is located? _____ **Sq Ft**

17. Is your pool enclosed by a screened enclosure or building? **Y / N** *(circle one)*

18. Has a radiant heat barrier been installed in the attic? **Y / N** *(circle one)*

*Note: Radiant barriers are "foil-like" liners inside of attics to prevent heat transfer.*

19. If a radiant heat barrier has been installed, is it installed on the underside of the roof deck?

**Y / N** *(circle one) If you circle NO, it means that the radiant barrier is on the floor of the attic.*

*Note: If a radiant heat barrier is on the underside of the roof, it will severely limit the heat transfer effectiveness of your system. If the radiant heat barrier is installed on the floor of the attic over the insulation and under the PCS3, it should not effect the operation of your system.*

20. Is any insulation installed on the underside of the roof? **Y / N** *(circle one)*

21. Are there any large [and open] passive attic vents such as gable vents located near the PCS3 inside the attic? **Y / N** *(circle one)*. If yes, how far away from the PCS2? _____**Ft**

22. Do you use a pool blanket? **Y / N** *(circle one)* Describe how it is used?_____

_____

23. Estimate the vertical distance from the bottom of the pool to the top inlet of the PCS3 in feet. _____ **Feet**

24. Estimate the horizontal distance from the pool to your house's attic area where the PCS3 is located. _____ **Feet**

25. What does the normal pressure on the gauge on top of your filter read? _____ **PSI**

Is your filter clean? **Y / N** *(circle one) Note: Take this reading with the pump on and the PCS3 solar system in Manual OFF mode to reflect the PSI without the PCS3 in the circuit.*

26. What does the pressure on the gauge on top of your filter read with PCS3? _____ **PSI**

*Note: Take this second reading with the pump on and the PCS3 solar system in Manual ON mode to reflect the PSI with the PCS3 in the plumbing circuit.*

27. Other than the bypass and check valve, are there any on/off or flow limiting type of gate or other valves in-line with the PCS3's inlet or outlet pipes? **Y / N** *(circle one)*

If yes, describe the other valves in your pool's plumbing:

_____

_____

_____

28. How many degrees do you think the PCS3 currently increases your pool's temperature over a period of two weeks? _____ °F

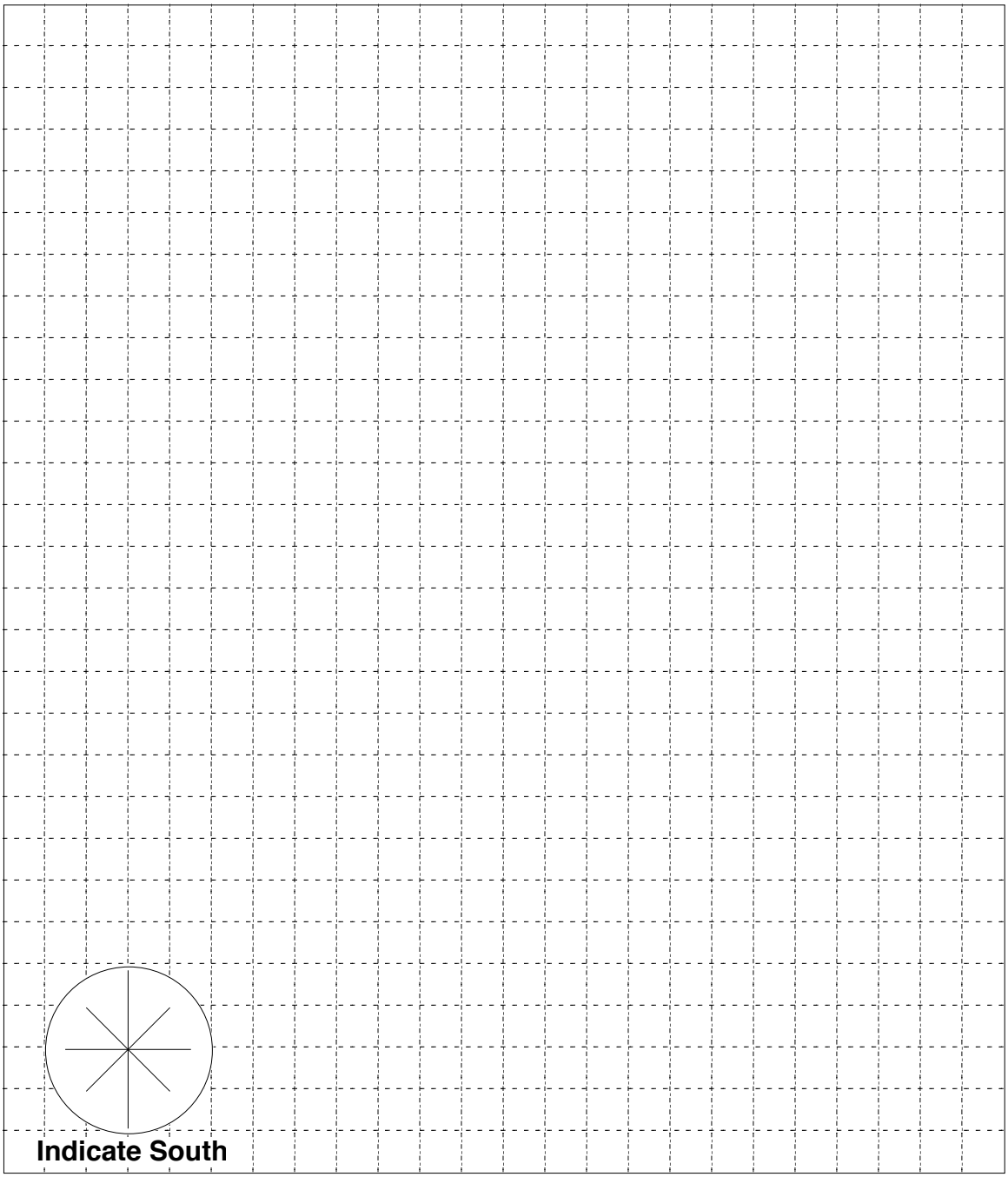
29. How many MORE degrees would you like to increase your pool's temperature? _____ °F

30. Do you use any other form of heater on your pool? Describe: _____

_____

## *PCS3 SYSTEM LAYOUT*

***Directions**: Draw a **top view** sketch of your house and pool. Indicate where your pool's support system and the PCS3 are located. In the "compass" area below [lower left corner], please indicate which direction is south in relation to your house and pool. <u>If possible</u>, send photos of your complete support system and it's plumbing; the house; the pool; and, the installed PCS3 when you return this completed survey. You can also email all photos for convenience.*



# *Operating Temperature Data*
# *Over a 2-Week Period*

*Please collect system operating temperature data over a two-week period of time [in season]. See "Instructions & Questions" below.*

| Day | Date | Outside Air Temp | Weather Conditions | Pool °F AM | Pool °F PM | °F Pool Gained |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |

**Instructions & questions for collecting the temperature data.**

1. Take the morning pool temperature at the same time each day.
   What time was the morning temperature taken at? _____ A.M.
2. Take the evening pool temperature at the same time each day.
   What time was the evening temperature taken at? _____ P.M.
3. The Air Temp column represents the outside ambient air temperature.
   Take the air temperature at either the morning or evening time [shown above].
   What time was the air temperature taken at? _____ A.M. or P.M. *(circle one)*
4. For weather conditions, state whether the sky was Sunny, Cloudy, Overcast, etc.
5. °F Pool Gained is the difference between the P.M. and A.M. pool temperatures.
6. Was a pool blanket used during this period of time? Y / N *(circle one)*

## *Other Observations & Comments*

# SolarAttic, Inc.
# Contact Information

Email questionnaire, photos and other supporting information to:

tech_support@solarattic.com

Mail questionnaire, photos and other supporting information to:

SolarAttic, Inc.
13570 Grove Drive #361
Maple Grove, MN 55330
(763) 441-3440
(763) 441-7174 Fax

Fax information to the above fax number.

Notice: SolarAttic does not provide in the field or on site support. All technical support is via phone, fax, or email. Email is the best method of obtaining a fast reply to technical issues.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