Model # SQ-2220-ID

INSTALLATION & OPERATION MANUAL

Read all the instructions before installing your solar heating system.
How does a solar heating system work?
1. Connect your existing pool pump to the solar panel. Your pool pump sends cold water to the solar panel.
2. The sun heats the water in the solar panel.
3. Warm water is then returned to your swimming pool.

How well does solar heating work?
A solar heating system if sized and installed properly will raise your pool water temperature up to 100°F / 60° C and extend your swimming season. In order to maximize the heat, the solar panel must be exposed to sunlight as long as possible. On rainy days and at night the solar panel must be turned off so your pool water doesn’t cool. You can accomplish this with the integrated diverter kit. On cloudy days, the solar panel won’t work as well. It is recommended to use a solar blanket or a Liquid Solar Blanket. This will help maintain the heat generated by the solar panel in your pool.

Is a special pump required?
If your panel is on the ground beside your pool, you can use your existing pool pump as long as it is in good working condition. A 1HP pump will handle a panel placed up to 9 meters (30 ft) away from your pool and one story up.

Where can the solar panel be placed?
The solar panel can be placed on the ground. Avoid placing in high traffic areas, as it is not recommended to walk on the solar panel. The solar panel can also be mounted on a rack or a roof. When mounted, the panel should preferably be facing south and be inclined at a 30° to 45° degree angle. Don’t face the panel North, because it will not heat. A mounting kit (part#SQ-RMK5) is required for placing the solar panel on a rack or roof.

How many panels do I need?

<table>
<thead>
<tr>
<th>Above-Ground Round Pool</th>
<th>Above-Ground Oval Pool</th>
<th>No. of Systems</th>
<th>In-Ground Pool</th>
<th>No. of Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 15'</td>
<td>Up to 12'x24'</td>
<td>1</td>
<td>Up to 15' x 30'</td>
<td>2</td>
</tr>
<tr>
<td>18' to 24'</td>
<td>12'x 28' to 16' x 25'</td>
<td>1 - 2</td>
<td>Up to 16' x 36'</td>
<td>3</td>
</tr>
<tr>
<td>27'</td>
<td>16'x 32' to 18' x 34'</td>
<td>2</td>
<td>Up to 20' x 40'</td>
<td>4</td>
</tr>
</tbody>
</table>

# of Panels is the minimum recommended. More panels will give you more heat, faster.
Box Contents:

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SK-1220</td>
<td>SunQuest solar panel 2ft x 20ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SK-FTG-D</td>
<td>Threaded combination hose adapter</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-I</td>
<td>&quot;O&quot; rings</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-F</td>
<td>Threaded cap</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-J</td>
<td>Rubber hose 7.5&quot;</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-L</td>
<td>Metal collar (Hose clamp)</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-E</td>
<td>Roll of Teflon tape</td>
</tr>
<tr>
<td>1</td>
<td>SK-INT-V</td>
<td>Integrated by-pass valve</td>
</tr>
</tbody>
</table>

Optional parts

**Roof Mounting Kit (SQ-RMK5)**

1 - SQ-RMK5 per SQ-2220 system is required for Roof or Rack installation

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>SK-RMK-ST-M</td>
<td>Coated metal strap</td>
</tr>
<tr>
<td>15</td>
<td>BOLT-Z</td>
<td>Lag bolt 2&quot;</td>
</tr>
</tbody>
</table>

**High Wind Roof Mounting Kit (SQ-HWK)**

For high wind areas, to be used in addition to the roof mounting kit (SQ-RMK5). 1 - SQ-HWK per SQ-2220 system is required plus one extra.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>SK-RMK-BASE</td>
<td>Mounting base</td>
</tr>
<tr>
<td>2</td>
<td>SK-RMK-CAP</td>
<td>Mounting Cap</td>
</tr>
<tr>
<td>1</td>
<td>SK-RMK-ST-N32</td>
<td>Nylon strap 32&quot;</td>
</tr>
<tr>
<td>1</td>
<td>SK-RMK-ST-V32</td>
<td>Vinyl strap 32&quot;</td>
</tr>
<tr>
<td>4</td>
<td>BOLT-Z</td>
<td>Lag bolt 2&quot;</td>
</tr>
</tbody>
</table>
### Optional parts (cont.)

**Add-on Kit (SQ-ADDON)**
1 SQ-ADDON required per SQ-2220 system added

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SK-FTG-J</td>
<td>Rubber hose 7.5”</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-L</td>
<td>Metal collar (Hose clamp)</td>
</tr>
</tbody>
</table>

**Vacuum relief Kit (SQ-VRK)**
Facilitates drainage for winterizing roof mounted systems

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SK-VRV</td>
<td>Vacuum Relief Valve</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-M</td>
<td>Reducer Adapter 1.5” to 0.75”</td>
</tr>
</tbody>
</table>

**Diverter Kit (SQ-DK)**
A diverter kit is already included with your SunQuest System
This kit in not necessary.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SK-FTG-A</td>
<td>Threaded 2 way valve</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-B</td>
<td>Threaded nipple</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-C</td>
<td>Threaded tee</td>
</tr>
<tr>
<td>4</td>
<td>SK-FTG-D</td>
<td>Threaded combination hose adapter</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-E</td>
<td>Roll of Teflon tape</td>
</tr>
</tbody>
</table>

**System Kit (SQ-SK)**
Everything needed to connect 3 SQ-2220 systems
Includes add-on kits, vacuum relief kit, high wind kits & diverter kit

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>SK-FTG-K</td>
<td>Rubber hose 3.75”</td>
</tr>
<tr>
<td>8</td>
<td>SK-FTG-L</td>
<td>Metal collar (Hose clamp)</td>
</tr>
<tr>
<td>1</td>
<td>SK-VRV</td>
<td>Vacuum Relief Valve</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-M</td>
<td>Reducer Adapter 1.5” to 0.75”</td>
</tr>
<tr>
<td>2</td>
<td>SK-FTG-N</td>
<td>PVC Adapter</td>
</tr>
<tr>
<td>4</td>
<td>SK-RMK-ST-N32</td>
<td>Nylon strap 32”</td>
</tr>
<tr>
<td>4</td>
<td>SK-RMK-ST-V32</td>
<td>Vinyl strap 32”</td>
</tr>
<tr>
<td>8</td>
<td>SK-RMK-BASE</td>
<td>Mounting base</td>
</tr>
<tr>
<td>8</td>
<td>SK-RMK-CAP</td>
<td>Mounting Cap</td>
</tr>
<tr>
<td>1</td>
<td>VALVE-3WAY-S</td>
<td>3 Way Diverter Valve</td>
</tr>
<tr>
<td>1</td>
<td>SK-FTG-O</td>
<td>PVC Tee</td>
</tr>
</tbody>
</table>

### INSTALLATION

**Additional parts required:**
- Flexible pool hose or rigid PVC pipe. Length dependent on distance from pool pump to solar panels.
- Metal collars (Hose clamps) - Quantity dependant on installation.

**Tools required:**
- Flat head screwdriver.
- For rack or roof placement a utility knife, a power drill and silicone sealant.
PANEL ASSEMBLY

1. Choose placement for your solar panel(s). Make sure that it will be in the sun for most of the day. The area should be clear of sharp objects.
2. Take the panel out of the box, remove the strap from panel and let the panel sit in the sun for approximately 30 minutes so it will become flexible.
3. a) **Installation: one system on ground.**

![Diagram Step 3a](image)

- Apply Teflon tape to threads of 2 caps (**SK-FTG-F**) See Fig 3a-1
- Thread the caps into the panels as per Diagram Step 3a. Do not over tighten. See Fig 3a-2
- Put "O" rings (**SK-FTG-I**) on both combination adapters (**SK-FTG-D**) See Fig 3a-3. Thread both combination adapters into the panels as per Diagram Step 3a. Do not over tighten. See Fig 3a-4
- Apply Teflon to threads of by-pass valve (**SK-INT-V**).
- Screw side of valve with handle into the panel as per Diagram Step 3a. Do not over tighten. See Fig 3a-7
- Loosen the union on the valve. See Fig 3a-8.
- Screw other side of valve into the panel as per Diagram Step 3a. Do not over tighten. See Fig 3a-9. Tighten the union on the valve.
- Push the rubber hose (**SK-FTG-J**) over the panel header as per Diagram Step 3a. Slide a metal collar (**SK-FTG-L**) onto the rubber hose. Place metal collar 1/4" from edge and tighten collar with screwdriver. See Fig 3a-10.
- Slide another metal collar onto the rubber hose. Connect the 2 panels together by pushing the rubber hose over the second panel header. Tighten metal collar to secure assembly. See Fig 3a-11
b) **Installation: one system on rack or roof. (Horizontal only)**

1 - Mounting kit (part # SQ-RMK5) is required.

- The integrated by-pass valve (SK-INT-V) needs to be accessible in order to turn the solar heating system On & Off. For this type of installation, the valve will be installed near the pump. See Connecting to Pool System with diverter near pump on page 11.

*Note: If you are installing on a rack that is easily accessible, you can connect the panel like a "on ground installation"
See Diagram Step 3a. For mounting the panels, follow the instruction included with the mounting kit.*

- Using a utility knife or a hand saw, cut rubber hose (SK-FTG-J) in half. Make sure you cut it as straight as possible. See Fig 3b-1. You should now have two rubbers 3 ¾" long.
- Apply Teflon on two of the caps (SK-FTG-F). See Fig 3a-1.
- Thread the 2 caps into the panels as per Diagram Step 3b. Do not over tighten. See Fig 3a-2
- Put "O" rings (SK-FTG-I) on both combination adapters (SK-FTG-D) See Fig 3a-3. Thread both combination adapters into the panels as per Diagram Step 3b. Do not over tighten. See Fig 3a-4
- Push the rubber hose you cut in half previously over the panel header as per Diagram Step 3b. Slide a metal collar (SK-FTG-L) onto the rubber hose. Place metal collar 1/4" from edge and tighten collar with screwdriver. See Fig 3a-10. Repeat for other end of panel.
- Slide another metal collar onto the rubber hose. Connect the 2 panels together by pushing the rubber hose over the second panel header. Tighten metal collar to secure assembly. See Fig 3a-11. Repeat for other end of panel.
- Install mounting kits as per instructions included with them. **Panels must be installed with a slight slope (minimum 1 inch per 10 feet) toward the inlet.** This will allow the panel to drain properly.

*Note: The inlet must always be at the lower end of the panel and the outlet at the higher end of the panel.*
3.  c) **Installation: two systems on ground. Add-on kit (part # SQ-ADDON) is required.**

![Diagram Step 3c](image)

- Using a utility knife or a hand saw, cut both rubber hose (SK-FTG-J) in half. Make sure you cut it as straight as possible. See Fig 3b-1. You should now have four rubbers 3 ¾” long.
- Apply Teflon tape to threads of two of the caps (SK-FTG-F). See Fig 3a-1.
- Thread the caps into the panels as per Diagram Step 3c. Do not over tighten. See Fig 3a-2.
- Put “O” rings (SK-FTG-I) on two combination adapters (SK-FTG-D). See Fig 3a-3. Thread both combination adapters into the panels as per Diagram Step 3c. Do not over tighten. See Fig 3a-4.
- Push the rubber hose you cut in half previously over the panel header as per Diagram Step 3b. Slide a metal collar (SK-FTG-L) onto the rubber hose. Place metal collar 1/4” from edge and tighten collar with screwdriver. See Fig 3a-10. Repeat for other end of panel.
- Slide another metal collar onto the rubber hose. Connect the 2 panels together by pushing the rubber hose over the second panel header. Tighten metal collar to secure assembly. See Fig 3a-11. Repeat for other end of panel.
- Repeat previous 2 steps for second set of panels. You will use the by-pass valve (SK-INT-V) and the Add-on kit (SQ-ADDON) to connect the two sets of panels together.
- Apply Teflon to threads of by-pass valve (SK-INT-V).
- Screw side of valve with handle into the panel as per Diagram Step 3c. Do not over tighten. See Fig 3a-7.
- Loosen the union on the valve. See Fig 3a-8.
- Screw other side of valve into the panel as per Diagram Step 3c. Do not over tighten. See Fig 3a-9.
- Install Add-on kit (SQ-ADDON) between two sets of panels.

*Note: A maximum of 6 2ft panels (3 systems) may be plumbed in series*
3 d) Installation: two systems on rack or roof. (Horizontal only)
2 Mounting kit (part # SQ-RMK5) are required.
1 System kit (part # SQ-SK) is required.

- The integrated by-pass valve (SK-INT-V) needs to be accessible in order to turn the solar heating system On & Off. For this type of installation, the valve will be installed near the pump. See connecting to pool section below.

- Using a utility knife cut rubber hose (SK-FTG-J) from each system in half. Make sure you cut them as straight as possible. See Fig 3b-1. You should now have rubbers that are 3 ¾" long.

- Apply Teflon on one of the caps (SK-FTG-F). See Fig 3a-1. You only need 1 cap for this type of installation.

- Thread the cap into the panels as per Diagram Step 3d. Do not over tighten. See Fig 3a-2

- If you are using flexible piping to connect panels to your pump then put "O" rings (SK-FTG-I) on both combination adapters (SK-FTG-D) See Fig 3a-3. Thread both combination adapters into the panels as per Diagram Step 3d. Do not over tighten. See Fig 3a-4

**OR**

If you are using rigid piping to connect panels to your pump then apply Teflon on both PVC adapters (SK-FTG-N) included in the system kit (SQ-SK) sold separately. See Fig 3d-1. Thread both adapters into the panels as per Diagram Step 3d. Do not over tighten. See Fig 3d-2.
Apply Teflon on reducer adapter (SK-FTG-M) included in the system kit (SQ-SK) sold separately. Thread reducer adapter into the panel as per diagram Step 3d. Do not over tighten. See Fig 3d-3.

Apply Teflon on vacuum relief valve (SK-VRV). Thread vacuum relief valve into the reducer adapter. Do not over tighten. See Fig 3d-3.

Note: The vacuum valve assembly must be installed at the top of the panels as per diagram Step 3d.

Push the rubber hose you cut in half previously over the panel header as per diagram Step 3d. Slide a metal collar (SK-FTG-L) onto the rubber hose. Place metal collar 1/4" from edge and tighten collar with screwdriver. See Fig 3a-10. Repeat for other end of panel.

Slide another metal collar onto the rubber hose. Connect the 2 panels together by pushing the rubber hose over the second panel header. Tighten metal collar to secure assembly. See Fig 3a-11. Repeat for other end of panel.

Repeat previous 2 steps for other system.

You should now have two sets of connected panels. You need to use rubbers from the system kit (SK-FTG-K) to connect the two set together as per Diagram Step 3d.

Install mounting kits as per instructions included with them. Panels must be installed with a slight slope (minimum 1 inch per 10 feet) toward the inlet. This will allow the panel to drain properly.

Note: The inlet must always be at the lower end of the panel and the outlet at the higher end of the panel.

Note: A maximum of 12 2ft panels (6 systems) may be plumbed in parallel

For high wind areas you can install the Nylon straps and Vinyl straps from System Kit. Mark a spot 6" to the right of the outlet. Mark spots 6" to the right of every second rubber hose that are on the same side as the outlet. Mark a spot 6" to the right of the cap. See Fig 3d-4. Place mounting base (SK-RMK-BASE) on these spots. Drill pilot holes, apply silicone roof sealant and screw mounting base into roof. See Fig 3d-5. Wrap a Nylon strap (SK-RMK-ST-N32) around the panel header (see Fig 3d-7) or around rubber hose (see Fig 3d-6). Lay both ends of strap in the mounting base and pull tight. See Fig 3d-8. Screw on mounting cap (SK-RMK-CAP). See Fig 3d-9. Repeat process on the inlet side of the panels but using the Vinyl straps (SK-RMK-ST-V32) instead.
1. Turn off your pool pump. Block the inlet and outlet of your pool so that the water won’t empty when you are connecting your panel(s).

2. Remove the hose from the pool inlet (hose between the filter and the pool) and connect the hose to the panel inlet. If hose is too short, you need to purchase a new one. Make sure you purchase the appropriate size that is compatible with your existing pool equipment. Place metal collar \( \frac{1}{4} \)" from edge and tighten collar with screwdriver. See Diagram C-1.

3. Connect another hose (not supplied) from the panel outlet to the pool inlet. See Diagram C-1.

4. Make sure that your hoses are all connected the correct way and that all the collars have been tightened. Unblock the inlet and outlet of your pool.

5. Make sure the valve on the integrated diverter is on the open position. See Fig C1-1.

6. Turn on your pool pump. Check for any leaks. If any of the threaded fittings leak, remove the fitting and apply more Teflon. If any of the hoses leak at the connection, loosen the collar and push the hose over the fitting and re-tighten the metal collar. You will see air bubbles coming from the pool inlet. This is normal, the air in the hoses is being purged.

7. Turn your solar heating system on by turning the integrated diverter to the closed position. See Fig C1-2. Once again you will see air bubbles coming from your pool. The system is now purging the air that is in the solar panel(s).
1. Assemble a diverter kit by installing the integrated by-pass valve (SK-INT-V) as shown in Diagram C-2 and Fig C2-1. (Tees and adapters not supplied)
2. Turn off your pool pump. Block the inlet and outlet of your pool so that the water won’t empty when you are connecting your panel(s).
3. Remove the hose from the pool inlet (hose between the filter and the pool) Connect the hose to one side of the diverter kit. Place metal collar 1/4” from edge and tighten collar with screwdriver. See Diagram C-2.
4. Take a hose (not supplied) long enough to reach the panel and connect one end to the diverter kit (same side of the two-way valve as in step 3) Place metal collar and tighten. Connect other end of the hose to the panel inlet. Place metal collar and tighten. See Diagram C-2.
5. Take another hose (not supplied) and connect it to the panel outlet. Place metal collar and tighten. Connect other end of the hose to the diverter kit. Place metal collar and tighten. See Diagram C-2.
6. Take the last hose (not supplied) and connect it to the last open end of the diverter kit. Place metal collar and tighten. Connect other end of the hose to your pool inlet. Place metal collar and tighten. See diagram C-2.
7. Make sure the valve on the diverter is on the open position.
8. Make sure that your hoses are all connected the correct way and that all the collars have been tightened. Unblock the inlet and outlet of your pool.
9. Turn on your pool pump. Check for any leaks. If any of the threaded fittings leak, remove the fitting and apply more Teflon. If any of the hoses leak at the connection, loosen the collar and push the hose over the fitting and re-tighten the metal collar. You will see air bubbles coming from the pool inlet. This is normal, the air in the hoses is being purged.
10. Turn your solar heating system on by turning the two-way valve in the diverter to the closed position. See Fig C2-2. Once again you will see air bubbles coming from your pool. The system is now purging the air that is in the solar panel(s).
1. Turn off your pool pump. Block the inlet and outlet of your pool so that the water won’t empty when you are connecting your panel(s).

2. Install Three Way Diverter Valve (VALVE-3WAY-S) and the PVC Tee (SK-FTG-O) on pool return line after filter. See Diagram C-3. If you have another pool heater, the three-way valve and tee should be installed before it.

3. You may want to install a check valve between the three-way valve and your filter. This will prevent the water that is in the panels from flowing backwards into the filter when your pump is turned off. If you install a check valve, make sure when you winterize your pool that all your piping is drained.

4. Run your feed and return PVC piping from your pool to your solar panels. Make sure piping is installed in such a way to allow proper drainage.

5. Make sure that your piping is connected the correct way and that all joints have been glued. Unblock the inlet and outlet of your pool.

6. Turn on your pool pump. Check for any leaks. You will see air bubbles coming from the pool inlet. This is normal, the air in the hoses is being purged.

7. Turn your solar heating system on by turning the three-way diverter valve. Once again you will see air bubbles coming from your pool. The system is now purging the air that is in the solar panel(s).

*Note: A motorized valve and Automatic controls are optional items available from your local pool dealer*
Operation and Maintenance

Turn on your solar heating system whenever the panel(s) are in sunlight. You will know the panel is working by touching it, it should feel cool to the touch. That means the heat from the sun is being transferred to the water inside the panel. Turn off your solar heating system at night and whenever it is raining. Failing to do so will cool your pool. It is recommended to close your solar heating system whenever you do a backwash or whenever you manually vacuum your swimming pool. It is also recommended to use a solar blanket or a Liquid Solar Blanket. This will help keep more of the heat generated by the solar panel in your pool.

Winterizing

System(s) on ground

At the end of the season, your solar panels must be drained of all water.

- After your pool has been closed, disconnect the hoses from the panel.
- Manipulate the panel until the water is completely out.
- Roll the panel up.
- Store the panel in a heated place until next season.

System(s) mounted on a roof or a rack

At the end of the season, your solar panels must be drained of all water.

- After your pool has been closed, turn your by-bass valve in such a way to allow the water from your panels to drain. Wait half an hour for panels to drain.
- Unscrew the Vacuum Relief Valve or the Threaded cap at the top of the solar system.
- Unscrew the Threaded cap at the bottom of the solar system and make sure all the water is drained out of the system. All your plumbing should be installed in such a way to allow full drainage of system. If you are not sure that all panels have been drained properly: disconnect each panel, raise them up and make sure that no water is present. Once completely drained, the panels can be left on the roof or rack. The SunQuest panels are designed to withstand the harshest winters.
- Apply Teflon to the Vacuum Relief Valve and Threaded Caps and re-screw them into the solar system. Do not over tighten.

Important: Unlike the pipes for your pool, blowing air in the panel will not drain it. The air will only empty a few tubes.

Internal Freeze damage is not covered by the warranty.

Troubleshooting

If you have any issues with your SunQuest, you can visit our website www.sunquestsolarpanel.com and review our frequently asked questions section.

You can also contact our customer support department at 1-888-357-6527

Sunsolar Energy Technologies Inc
3262 F-X Tessier
Vaudreuil-Dorion, Qc, Can
J7V 5V5

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WARRANTY REGISTRATION

Please enter your Warranty Registration on line at: www.sunquestsolarpanel.com

Please complete and mail to the address below:

Name: ___________________________ Phone #: ( ) ___________________________

Address: ________________________________________________________________

City: ___________________________ Prov/State: _____ Postal/Zip Code: ____________

Dealer name: ___________________________ Date of purchase: _______________

Retail Price: ___________ Pool size: ___________________________ Signature: ___________

Sunsolar Energy Technologies Inc
3262 F-X Tessier
Vaudreuil-Dorion, Qc, J7V 5V5